AGENDA

ICEMA
MEDICAL ADVISORY COMMITTEE

December 20, 2018

1300

Purpose: Information Sharing

Meeting Facilitator: Stephen Patterson

Timekeeper: Suzee Kolodzik

Record Keeper: Suzee Kolodzik

	AGENDA ITEM	PERSON(S)	DISCUSSION/ACTION
I.	Welcome/Introductions	Stephen Patterson	
II.	Approval of Minutes	Stephen Patterson	Discussion/Action
III.	Discussion/Action Items		
	A. Standing EMS System Updates		
	1. Trauma Program 2. STEMI Program 3. Stroke Program 4. SAC Update	1. Suzee Kolodzik/ Loreen Gutierrez 2. Suzee Kolodzik/ Loreen Gutierrez 3. Suzee Kolodzik/ Loreen Gutierrez 4. Kevin Parkes	1. Discussion 2. Discussion 3. Discussion 4. Discussion
	B. EMS Trends		
	1. Ketamine Study Update 2. Out of Hospital Cardiac Arrest Initiative	1.Reza Vaezazizi 2.Reza Vaezazizi	Discussion
	C. ITD for Prehospital Use	Reza Vaezazizi	Discussion
	D. Ideal Airways for OHCA	Reza Vaezazizi	Discussion
	E. Pediatric Supraglotic Airways	Reza Vaezazizi	Discussion
	F. Transportation of Police Canine Pilot Program	Tom Lynch	Discussion
	G. HEMS Utilization Task Force	Stephen Patterson	Discussion
	H. Literature Review CARES Abstracts - Resuscitation Science Symposium and Scientific Sessions 2018	Reza Vaezazizi	Discussion
	I. 2019 EMS Officers Skills Manual	Ann Sandez	Discussion/Action
	J. 2019 MAC Meeting Dates	Suzee Kolodzik	Discussion

IV.	Public Comment Period		
V.	Future Agenda Items		
VI.	Next Meeting Date: February 28, 2019		
VII.	Adjournment		
VIII.	Closed Session		
	A. Case Reviews		
	B. Loop Closure Cases		

Purpose: The Medical Advisory Committee (MAC) advises the ICEMA Medical Director on all matters pertaining to the clinical or medical aspects of the Emergency Medical Services (EMS) in the ICEMA region.

MINUTES

ICEMA
MEDICAL ADVISORY COMMITTEE

October 25, 2018

1300

AGENDA ITEM		DISCUSSION/FOLLOW UP	RESPONSIBLE PERSON(S)
I.	WELCOME/INTRODUCTIONS	Meeting was called to order at 1310.	Stephen Patterson
II.	APPROVAL OF MINUTES	The August 23, 2018, minutes were reviewed. Motion to approve. MSC: Seth Dukes/Melanie Randall APPROVED Ayes: Brian Savino, Melanie Randall, Seth Dukes, Joy Peters, Leslie Parham, Joe Powell Susie Moss, Stephen Patterson, Michael Guirguis, Debbie Bervel	Stephen Patterson
III.	DISCUSSION ITEMS		
	A. Standing EMS System Updates		
	1. Trauma Program	No update.	Suzee Kolodzik/ Loreen Gutierrez
	2. STEMI Program	The STEMI CQI Committee met on October 23, 2018. State regulations were approved and expected implementation early 2019.	Suzee Kolodzik/ Loreen Gutierrez
	3. Stroke Program	State regulations were approved and expected implementation early 2019. No further update.	Suzee Kolodzik/ Loreen Gutierrez
	4. SAC Update	No update.	Kevin Parkes
	B. EMS Trends		
	1. Ketamine Study Update	Over 400 administrations included into the study. Of those, 35 patients reported adverse effects with the most common being nausea.	Alex Jabourian
	C. Base Hospital Orders While on Bed Delay	Discussion on responsibility of patient care while on bed delay.	Seth Dukes
	D. Pediatric Supraglottic Airways	Melanie Randall wanted to emphasize good BVM with pediatric patients. Minimal literature on supraglottic airway use in pediatrics.	Reza Vaezazizi/ Melanie Randall

	E. Auto-Vents	Robert Davis spoke about the research he did on the possible yearly usage of these and came to the conclusion that it would be 80 - 100 uses, only affecting approximately 45 paramedics.	Robert Davis
	F. EMS Physician On Scene	Seth Dukes presented the second draft of the policy and application. MAC requested input from other committees, i.e., EMS Officers and EMS Nurses. SAC will be presented the final draft once completed.	Seth Dukes
	G. EMS MICN-RN On Scene	Robert Davis presented the first draft of the policy. MAC requested more research before submitting new request to committee.	Robert Davis
	H. HEMS Utilization Task Force	The criteria and data elements for case reviews are being developed. Active participants for the process have been established.	Stephen Patterson
	I. Hydroxocobalamin	Currently, Hydroxocobalamin is an expanded scope specialty program use only. No reported uses since implementation and no other requests for uses received. One EMS provider was approved for the specialty program but recently submitted a request to remove this from its practice.	Reza Vaezazizi
IV.	PUBLIC COMMENT		Stephen Patterson
V.	FUTURE AGENDA ITEMS	- Ideal airway management in OHCA patients.	
VI.	NEXT MEETING	December 20, 2018	
VII.	ADJOURNMENT	Meeting was adjourned at 1439.	

Attendees:

NAME	MAC POSITION	EMS AGENCY STAFF	POSITION
☒ P. Brian Savino - LLUMC ☐ VACANT	Trauma Hospital Physicians (2)	☒ Reza Vaezazizi, MD	Medical Director
☒ Melanie Randall - LLUMC	Pediatric Critical Care Physician	☒ Tom Lynch	EMS Administrator
☐ VACANT ☐ Phong Nguyen - RDCH	Non-Trauma Base Physician s (2)	☒ Loreen Gutierrez	Specialty Care Coordinator
☐ Aaron Rubin - Kaiser	Non-Base Hospital Physician	☒ Ron Holk	EMS Coordinator
☐ Michael Neeki - Rialto FD (Chair)	Public Transport Medical Director	☒ Suzee Kolodzik	EMS Specialist
☒ Seth Dukes - AMR	Private Transport Medical Director	☐ Amber Anaya	EMS Specialist
☐ VACANT	Fire Department Medical Director		
☒ Joy Peters - ARMC	EMS Nurses		
☒ Leslie Parham - Chino Valley FD	EMS Officers		
☒ Joe Powell - Rialto FD	Public Transport Medical Rep (Paramedic/RN)		
☒ Susie Moss - AMR	Private Transport Medical Rep (Paramedic/RN)		
☐ Lance Brown - LLUMC	Specialty Center Medical Director		
☐ VACANT	Specialty Center Coordinator		
☐ Troy Pennington - Mercy Air	Private Air Transport Medical Director		
☒ Stephen Patterson - Sheriff's Air Rescue	Public Air Transport Medical Director		
☒ Michael Guirguis - SB Comm Center	PSAP Medical Director		
☐ Lisa Davis - Sierra Lifeflight	Inyo County Representative		
☐ Rosemary Sachs	Mono County Representative		
☐ Kevin Parkes - SARH	SAC Liaison		
☒ Debbie Bervel - Sheriff's Air Rescue	ICEMA Medical Director Appointee		
☐ Kathy Crow	EMT - P Training Program Representative		

CARES Abstracts – Resuscitation Science Symposium & Scientific Sessions 2018

Helen B. Taussig Memorial Lecture:

Conventional Bystander CPR is Associated With Higher Neurologically Favorable Survival in Children Compared to Compression Only CPR Following Pediatric Out of Hospital Cardiac Arrest

Maryam Y Naim, Heather Griffis, Robert A Berg, Richard N Bradley, Rita V Burke, David Markenson, Bryan F McNally, Vinay M Nadkarni, Lihai Song, Kimberly Vellano, Joseph W Rossano

Introduction: There are conflicting data regarding the benefit of conventional bystander CPR (BCPR) compared to compression only BCPR (CO-BCPR) for children following out of hospital cardiac arrest (OHCA).
Hypothesis: Conventional BCPR is associated with improved outcome compared to CO-BCPR in infants, children and adolescents following OHCA**.**
Methods: An analysis of the Cardiac Arrest Registry to Enhance Survival was conducted. Inclusion criteria were age ≤ 18 years and non-traumatic OHCA from 2013 through 2017. The primary outcome was neurologically favorable survival (cerebral performance category score of 1 or 2). Age groups included infants (≤1 year), children (2-11 years), and adolescents (≥12 years).
Results: Of 6249 cardiac arrests, 1191 received conventional BCPR, 1386 received CO-BCPR, and 3672 received no BCPR. The highest neurologically favorable survival was associated with conventional BCPR (adjusted proportion12.5%, OR 2.5, 95% CI 1.9, 3.2) for the overall cohort compared to CO-BCPR (9%, OR 1.6, 95% CI 1.2, 2.0) and no BCPR (6.4%). Conventional BCPR was significantly associated with improved neurologically favorable survival vs. no BCPR in the overall cohort and in all age groups (infants 9.4% vs. 5.4%, children 17.9% vs. 6.2%, adolescents 14% vs. 8,1%, p-value (for all) <0.001). Conventional BCPR was also significantly associated with improved neurologically favorable survival vs. CO-BCPR in the overall cohort and for infants (9.4% vs. 6.1%, p=0.02). CO-BCPR was significantly associated with improved neurologically favorable survival compared to no BCPR in the overall cohort and in children (13.5% vs. 6.2%, p<0.001), but not in infants or adolescents.
Conclusion: Conventional BCPR was associated with higher neurologically favorable survival compared to no BCPR in all children and compared to CO-BCPR in most age groups. These results support current AHA/ILCOR recommendations for the provision of conventional BCPR in pediatric OHCA.

Oral Presentations:

Evaluating Variation in Return of Spontaneous Circulation Rates Across EMS Agencies in Michigan

Mahshid Abir, Rama Salhi, Jason Goldstick, Jessica Lehrich, Sydney Fouche, Claude Setodji, Bill Forbush, Steve Kronick, Teri Shields, Erin Brennan, Robert Swor, Brian O'Neil, Robert Neumar, Brahmajee Nallamothu

Background: Out-of-hospital cardiac arrest (OHCA) outcomes vary significantly across U.S. communities; however, systems of care factors that increase the likelihood of survival have not been well elucidated. The Enhancing Pre-Hospital Outcomes for Cardiac Arrest (EPOC) study is quantifying variation in the rate of sustained return of spontaneous circulation (ROSC) upon ED arrival across Michigan EMS agencies as a first step to identifying 'best practices' in prehospital OHCA care.
Methods: Michigan Cardiac Arrest Registry to Enhance Survival (CARES) data for the years 2014-2016 was used. EMS agencies with 5+ arrests over the study years were included in the analysis. Using mixed-effects logistic regression, we calculated each agency's reliability-adjusted sustained ROSC upon ED arrival; these rates were standardized across patient-, community-, and arrest-level characteristics.
Results: A total of 91 agencies covering >6.8 million lives met inclusion criteria. We included 14,219 OHCA patients with a mean age of 62.6, 40.0% female, and 18.2% with a shockable rhythm in the analyses. Across all agencies, the mean patient-standardized rate of sustained ROSC with pulse upon ED arrival was 25.3% (range, 6.1%-51.9%; IQR range, 18.9%-31.2%) (**Figure 1**). There were 14 agencies with patient-standardized rates and 95% CIs that exceeded the overall mean survival rate suggesting better-than-average outcomes while 16 agencies had rates and 95% CIs that were lower than the overall mean survival rate.
Conclusion: We found more than 8-fold variation in OHCA survival rates across EMS agencies in Michigan, suggesting large differences in the effectiveness of prehospital systems of care. Future qualitative work will seek to identify 'best practices' by further determining the role of key factors such as tele-dispatch CPR, EMS agencies, fire, and police within high performing systems.

When Laws Save Lives: Impact of Legislation Requiring Cardiopulmonary Resuscitation Education in High Schools on Survival After Sudden Cardiac Arrest

Victoria L. Vetter, Katherine F. Dalldorf, Joseph Rossano, Maryam Y. Naim, Andrew C. Glatz, Kimberly Vellano, Bryan McNally, Heather Griffis

Introduction: Thirty eight states have laws requiring education of high school students on cardiopulmonary resuscitation (CPR) and the use of automated external defibrillators (AED). No study has measured the association of these laws and outcomes.
Hypothesis: Out of hospital cardiac arrests (OHCAs) occurring in states with CPR high school education laws will have higher bystander CPR, survival, and favorable neurological survival than states without such laws.
Methods: We conducted an analysis of the Cardiac Arrest Registry to Enhance Survival database and included all nontraumatic OHCAs with at least 50% population catchment from 1/2013-12/2017 in all ages. We excluded OHCAs witnessed by 911 responders, in healthcare facilities, or nursing homes. Outcomes were bystander CPR, survival to hospital discharge and neurologically favorable survival (Cerebral Performance Category score of 1 or 2 at hospital discharge). Chi-square tests were used to assess associations.
Results: The 110,902 subjects with OHCA included Male, 64.0%; <18 yrs., 3.2%; <35 yrs., 10.7%; <50 yrs., 23.9%; White, 49.3%; Black, 19.1%; Hispanic, 2.3%; Other, 2.9%; Unknown, 26.5%. Most OHCAs occurred at home, 81.4%. 44.4% were witnessed by bystanders. 75.5% occurred in states with CPR high school education laws. A higher percent of OHCAs received bystander CPR prior to emergency medical services (EMS) arrival in states with CPR high school education laws (40.1%) compared to states without laws (37.0%) ($p<0.001$). Bystander CPR was less common in males (40.3% vs. 37.7% for females), those >50 yrs. (38.9% vs. 40.7% for ≤50 yrs.), Black and Hispanic subjects (25.7% and 34.9%, respectively, vs. 42.4% for Whites) ($p<0.001$ for all). Overall survival to hospital discharge was 10.4%; 8.8% had a favorable neurological outcome. A higher percent survived to hospital discharge in states with CPR high school education laws (11.0%) compared to states without laws (8.7%) ($p<0.001$). Neurologically favorable survival was more likely in states with CPR high school education laws, (9.3%) compared to states without laws (7.5%) ($p<0.001$).
Conclusions: Bystander CPR, survival to hospital discharge, and neurologically favorable survival was higher in states that had CPR high school education laws.

Posters:

Estimating the Impact of Bystander Interventions on Disability-Adjusted Life Years Following Adult Out-of-Hospital Cardiac Arrest in the United States

Ryan A. Coute, Brian Nathanson, Ashish Panchal, Michael Kurz, Nathan Haas, Bryan McNally, Robert Neumar, Timothy Mader

Background: Disability-adjusted life years (DALY) are a common public health metric used to consistently estimate and compare disease burden. The impact of bystander interventions on DALY following out-of-hospital cardiac arrest (OHCA) is unknown. Our objective was to estimate the effect of bystander CPR (B-CPR) and bystander AED (B-AED) application on DALY following OHCA in the United States (U.S.).
Methods: DALY were calculated as the sum of years of life lost (YLL) and years lived with disability (YLD) using all adult non-traumatic EMS-treated OHCA from the national CARES database for 2016. A multivariable linear regression model was constructed for effect estimation with DALY values as the outcome and standard Utstein variables as independent variables. Marginal effect estimates for B-CPR and B-AED were derived in models that used all independent variables as main effects. A sensitivity analysis included interaction terms. The analysis for B-CPR was limited to bystander witnessed events. The B-AED analysis was limited to public OHCA events. The marginal effects on DALY were used to derive national estimates of life years saved.
Results: A total of 19,324 OHCA cases met study inclusion criteria. The provision of B-CPR was associated with an absolute mean decrease of -0.36 DALY; 95% CI (-0.44, -0.27) per OHCA, when compared to cases without B-CPR ($p<0.001$). When extrapolated to a national level, the cumulative effect of B-CPR resulted in an estimated 25,317 healthy life years saved; 95% CI (19,342, 31,292). Bystander AED application was associated with a mean reduction of -0.32 DALY; 95% CI (-0.41, -0.23) per OHCA ($p<0.001$). The cumulative effect of B-AED application was an estimated 22,755 healthy life years saved 95% CI (16292, 29218). From a regression model that incorporated interaction effects, B-CPR with defibrillation was associated with an estimated 74,758; 95% CI (58511, 91004) healthy life years saved.
Conclusion: Bystander interventions are associated with a decrease in DALY following adult OHCA. These results highlight the importance of national bystander CPR and AED education and surveillance.

The Influence of Age, Race, and Ethnicity on Public Automated External Defibrillator Use and Outcomes of Pediatric Out-of-Hospital Cardiac Arrest in the United States: An Analysis of the Cardiac Arrest Registry to Enhance Survival (CARES)

Heather Griffis, Lucy Wu, Maryam Naim, Joshua Tobin, Bryan McNally, Kimberly Vellano, Linda Quan, David Markenson, Richard Bradley, Joseph Rossano

Introduction: Automated external defibrillators (AEDs) are an important link in the chain of survival following out-of-hospital cardiac arrest (OHCA). While the use of AEDs are clearly beneficial for OHCA in adults, there are few data on the overall use and outcomes of public AED use in children.
Hypothesis: AED use is uncommon in children and associated with neurologically favorable survival.
Methods: We conducted an analysis of the Cardiac Arrest Registry to Enhance Survival database. Inclusion criteria were age ≤ 18 years of age, public arrests, and non-traumatic OHCA from January 1, 2013 through December 31, 2017. Neurologically favorable survival was defined as a Cerebral Performance Category Scale of 1 or 2 at hospital discharge.
Results: Of 971 public pediatric OHCA (66% male, 32% white), AEDs were used by bystanders in 117 (10.3%). AEDs were used among 2.3% of children aged ≤ 1 year (infants), 8.3% of 2-5 year-olds, 12.4% of 6-11 year-olds, and 18.2% of 12-18 year-olds ($p<0.001$). AED use was similar among white (11.1%), black (9.1%), and Hispanic children (8.1%) ($p=0.84$). AED use was more common with the provision of bystander CPR (19.1%) vs no bystander CPR (0.9%), witnessed arrests (16.0%) vs unwitnessed arrests (4.7%), and arrests with a shockable rhythm (23.6%) vs a nonshockable rhythm (6.3%) ($p<0.001$ for all). Overall, adjusted neurologically favorable survival was 29.1% (95% CI 22.7%, 35.5%) when a bystander used an AED compared to 23.7% (95% confidence interval [CI] 21.1%, 26.3%) for no bystander AED use ($p=0.11$). There was a significant interaction with age and race/ethnicity. AEDs were associated with neurologically favorable survival among children aged 12-18 years ($p=0.04$) but not associated with neurologically favorable survival in children ≤ 1 year ($p=0.43$), 1-5 years ($p=0.16$) or 6-11 years (0.41). AEDs were also associated with neurologically favorable survival in white children ($p=0.01$) but not with black ($p=0.97$) or Hispanic children ($p=0.06$).
Conclusions: AED use is uncommon in children suffering OHCA but is associated with improved neurologically favorable survival. The benefit of AEDs was evident mostly for adolescents and white children. Further study is needed to understand these disparities in AED use and outcomes after AED use.

The Epidemiology of Airway Management Following Pediatric Out-of-Hospital Cardiac Arrest in the United States

Maryam Y. Naim, Heather Griffis, Robert A. Berg, Richard N. Bradley, Matthew L. Hansen, David Markenson, Bryan F. McNally, Vinay M. Nadkarni, Kimberly Vellano, Joseph W. Rossano

Introduction: Bag mask ventilation (BMV) has been associated with improved survival following out of hospital cardiac arrest (OHCA), however advanced airway placement remains part of pre-hospital protocols for many emergency medical services (EMS) agencies.
Hypothesis: To characterize airway management for pediatric OHCA and assess whether BMV alone vs. BMV plus advanced airway (supraglottic airway or tracheal intubation) is associated with neurologically favorable survival.
Methods: Analysis of the Cardiac Arrest Registry to Enhance Survival database. Inclusion criteria were age ≤ 18 years, non-traumatic OHCA from 2013 through 2017, resuscitated by EMS. To adjust for covariate imbalance, propensity score matching and entropy balancing were utilized; variables included age category, sex, bystander CPR, and shockable rhythm. The primary outcome was favorable neurologically favorable survival defined as a cerebral performance category scale of 1 or 2.
Results: Of 5241 cardiac arrests, 2588 (49.3%) had BVM and 2653 (50.6%) had advanced airway placement. The majority 5118 (97.7%) were resuscitated by agencies using both BMV and advanced airways. Advanced airway placement was more common in older children compared to infants, arrests with bystander CPR, in white and Hispanic children, witnessed arrests, arrests with a shockable rhythm, and AED use (Table). Neurologically favorable survival was significantly higher with BMV compared to advanced airways in bivariate analysis (11.4% vs. 5.7%, $p<0.001$). In multivariable analysis, advanced airway placement was associated with lower neurologically favorable survival (adjusted proportion 4.9% vs. 13.5% BVM, OR 0.21, 95% CI 0.17, 0.28). These results were robust on propensity analysis 3.0% advanced airway vs.11.9% BMV (OR 0.18, 95% CI 0.14, 0.25), and entropy balance 5.9% advanced airway, 15.0% for BMV (OR 0.28, 95% CI 0.22).
Conclusion: In pediatric OHCA, advanced airways are placed in half of cardiac arrests where resuscitation is

attempted. Advanced airway, compared to BMV alone management, is associated with lower neurologically favorable survival.

Comparison of Tracheal Intubation vs. Supraglottic Airway Following Pediatric Out of Hospital Cardiac Arrest
Maryam Y. Naim, Heather Griffis, Robert A. Berg, Richard N. Bradley, Matthew L. Hansen, David Markenson, Bryan F. McNally, Vinay M. Nadkarni, Kimberly Vellano, Joseph W. Rossano

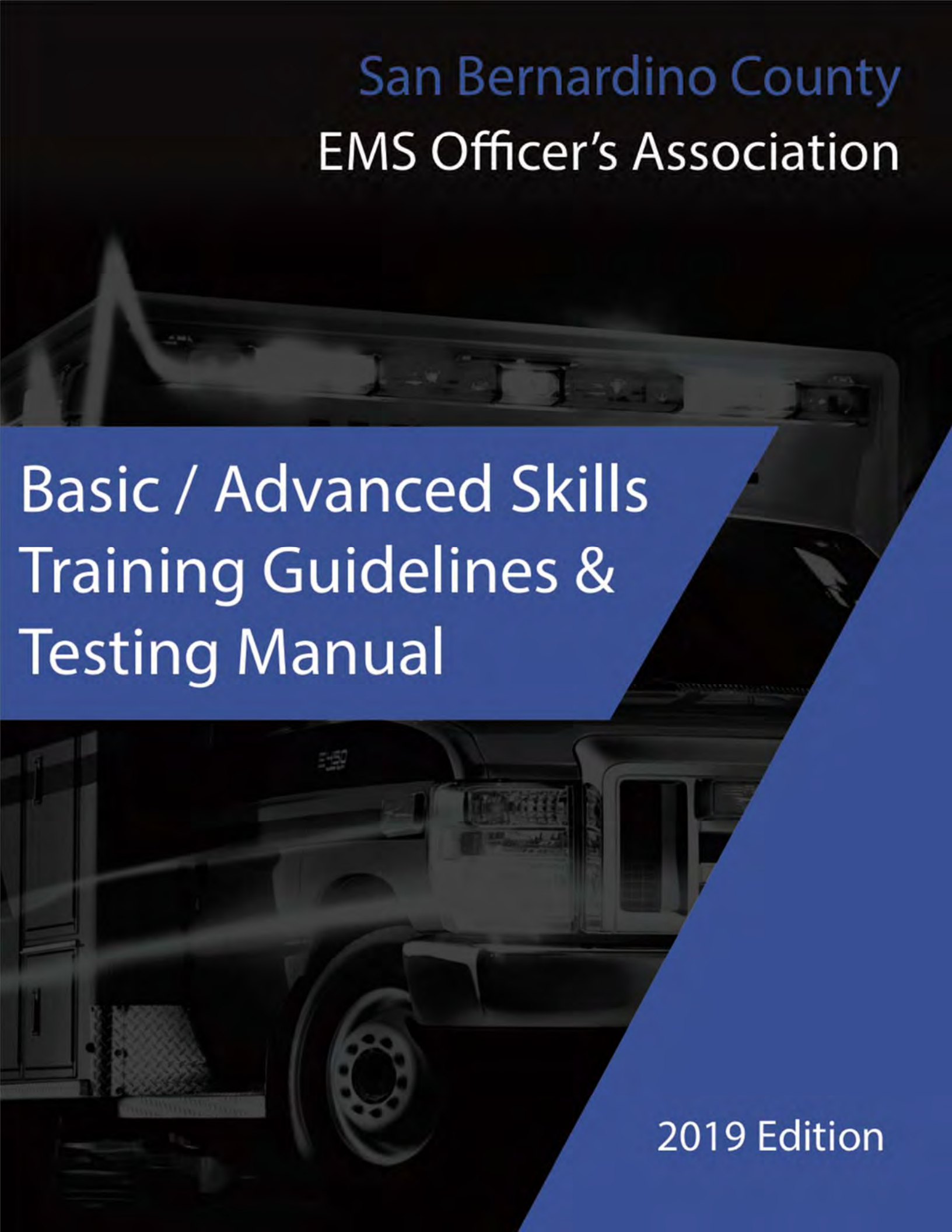
Introduction: There are few data comparing Tracheal Intubation (TI) and SupraGlottic Airway (SGA) following pediatric out of hospital cardiac arrest (OHCA).
Hypothesis: TI is associated with improved outcomes compared to SGA following pediatric OHCA.
Methods: Analysis of the Cardiac Arrest Registry to Enhance Survival database. Inclusion criteria were age ≤ 18 years, non-traumatic OHCA from 2013 through 2017, resuscitated by Emergency Medical Services (EMS). To adjust for covariate imbalance, propensity score matching and entropy balancing were utilized; variables included age category, sex, bystander CPR, and initial rhythm. Primary outcome was neurologically favorable survival defined as a cerebral performance category scale of 1 or 2. Secondary outcome was survival to hospital discharge.
Results: Of 2653 cardiac arrests evaluated, 2178 (82.1%) had TI and 475 (17.9%) had SGA placed during OHCA. 835 (31.2%) arrests were resuscitated by agencies used bag valve mask (BVM) and TI and 1818 (68.0%) arrests had agencies that used all 3 airway types (BVM/TI/SGA). Overall, unadjusted favorable neurological survival was 5.7% for TI and 5.3% for SGA, p=0.67 and survival to hospital discharge was 7.9% for TI and 7.5% for SGA, p=0.73. In multivariable analysis (adjusting for age, sex, race/ethnicity, bystander witness, bystander CPR, initial rhythm, AED use, year of arrest, and agency category), SGA was associated with lower neurologically favorable survival compared to TI (adjusted proportion 3.7% vs. 6.3%, OR 0.49, p=0.01), and lower survival to hospital discharge (5.5% vs. 8.5%, OR 0.57, 95% CI 0.36, 0.89). These results were robust on tests for unmeasured confounding and covariate balance; propensity analysis neurologically favorable survival 4.4% vs.7.6% (OR 0.54, 95% CI 0.30, 0.96), survival to hospital discharge 6.6% vs.10.5% (OR 0.58, 95% CI 0.35, 0.95); and entropy balance neurologically favorable survival 5.0 % vs. 9.7% for ETI (OR 0.44, 95% CI 0.27, 0.72), survival to hospital discharge 7.3% vs.12.5% (OR 0.51, 95% CI 0.34, 0.78).
Conclusion: In pediatric OHCA, TI, compared with SGA advanced airway management is associated with improved neurologically favorable survival and survival to hospital discharge.

Higher Walk Score Associated With Higher Rates of Bystander AED Use in Street-Level Cardiac Arrest
John Chen, Valery Effoe, John Lisko, Nabil Sabbak, Shawn Reginauld, Yi-An Ko, Frank Corrigan III, Stamatios Lerakis

Introduction: Bystander CPR (BCPR) and AED use are crucial life-saving measures in out-of-hospital cardiac arrest (OHCA). OHCA occurring in low-income black neighborhoods are less likely to receive bystander assistance. In addition to socioeconomic disparities, characteristics of the built environment may also contribute to large variation in BCPR and bystander AED rates.
Hypothesis: We hypothesized that pedestrian-friendly spaces have higher rates of BCPR and bystander AED use.
Methods: Using the Cardiac Arrest Registry to Enhance Survival, we studied OHCA occurring in street/highway locations in the US in 2016. We excluded cardiac arrests that were witnessed by a 911 responder. Each incident address was assigned a 0-100 Walk Score® using an open-source algorithm and linked to census tract race and income data. We analyzed the relationship between Walk Score and key elements of bystander behavior: witness of arrest, provision of BCPR, and use of AED.
Results: Of 3225 OHCA, 1666 (51.7%) were witnessed, 934 (29.0%) received BCPR, and 165 (5.1%) used an AED. After adjusting for age, gender, neighborhood median household income, and neighborhood percent black, every 10-point increase in Walk Score was associated with higher odds of bystander AED use (OR, 1.23; 95% CI, 1.14 to 1.32) but lower odds of witnessed arrest (OR, 0.95; 95% CI, 0.93 to 0.97) and BCPR (OR, 0.92; 95% CI, 0.90 to 0.95) (Table). Lower neighborhood household income predicted less BCPR and AED use; higher neighborhood black composition also predicted less BCPR.
Conclusions: After adjusting for neighborhood-level race and income, OHCA occurring in walkable areas had higher rates of bystander AED use but lower rates of witnessed arrest and BCPR. The effects of built environments on bystander behavior and AED availability warrant closer investigation.

San Bernardino County

EMS Officer's Association



Basic / Advanced Skills Training Guidelines & Testing Manual

2019 Edition

Foreword from EMS Officers

Greetings Colleagues,

This basic and advanced skills training guidelines and testing manual is for you! The San Bernardino County EMS Officer's association has created and supports this living and breathing document. This manual is supported by industry standards and resources (NREMT and ICEMA protocols/standards) utilized in educational institutions and organizations that set a national standard for Emergency Medical Services. As this is a living document, annual revisions will be updated based on feedback from users and administrators who utilize this for education and application purposes. Please don't hesitate to forward concerns to your respective EMS Officer representative to help uphold the industry standard for all.

Best Regards,

San Bernardino County EMS Officer's Association

Basic Life Support Skills **Table of Contents**

Basic Life Support Skills Cont. **Table of Contents**

Advanced Life Support Skills **Table of Contents**

12 Lead Electrography

INDICATIONS

Patient with complaint of chest pain, with suspected or at risk of having an myocardial infarction

CONTRAINDICATIONS (Relative)

- Uncooperative patient
- Life-threatening conditions
- 12 Lead will impede immediate patient care needs

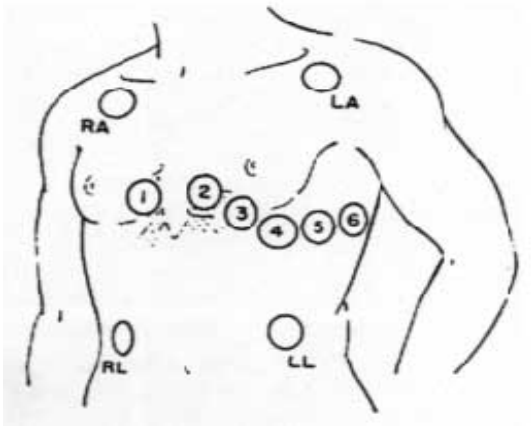
CONSIDERATIONS

Consider 12-lead ECG with atypical presentations (figure 2):

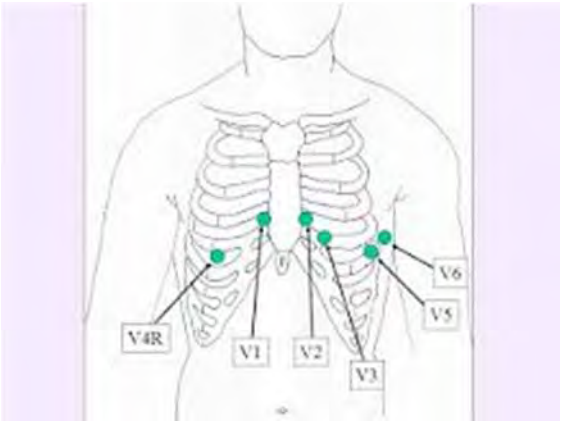
Elderly
Female
Diabetic
Unexplained or near syncope
Shortness of Breath
Generalized weakness (over fifty (50) years of age)
Profound weakness, acute onset
Upper abdominal discomfort

*** For suspected right sided MI, remove V4 lead and place it at the 5th intercostal space midclavicular line on the right side of the chest. Figure 1.***

Figure 1



http://www.ems12lead.com/2008/10/17/



http://nuclearcardiologyseminars.com/electrocardiography

12-lead-ecg-lead-placement-diagrams/

Figure 2

I Lateral	aVR	V1 Septal	V4 Anterior
II Inferior	aVL Lateral	V2 Septal	V5 Lateral
III Inferior	aVF Inferior	V3 Anterior	V6 Lateral

SITE	FACING	RECIPROCAL
SEPTAL	V1, V2	NONE
ANTERIOR	V3, V4	NONE
ANTEROSEPTAL	V1, V2, V3, V4	NONE
LATERAL	I, aVL, V5, V6	II, III, aVF
ANTEROLATERAL	I, aVL, V3, V4, V5, V6	II, III, aVF
INFERIOR	II, III, aVF	I, aVL
POSTERIOR	NONE	V1, V2, V3, V4

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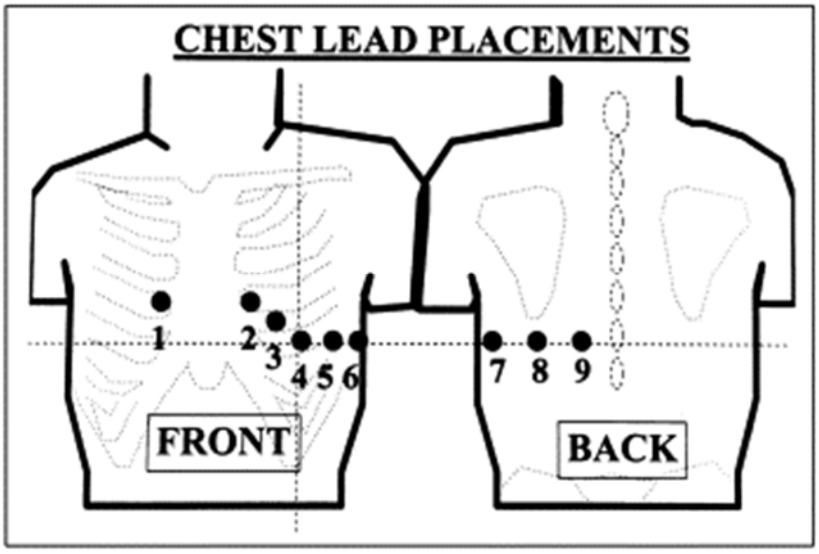
*15 Lead Placement



12 Lead Electrography

Skills Test

Examinee : _____ Date:_____

Examiner: _____ Pass ☐ Pass/Counsel ☐ Fail ☐

Equipment:

- 12-lead electrodes
- Cardiac monitor with 12-lead capabilities
- Razor (as needed)

Assessment/Treatment indicators:

Indications	**Contraindications**
• Patient with complaint of chest pain, with suspected or at risk of having an myocardial infarction • Consider 12-lead ECG with atypical presentations: ▪ Elderly ▪ Female ▪ Diabetic ▪ Unexplained or near syncope ▪ Shortness of Breath ▪ Generalized weakness (over fifty (50) years of age) ▪ Profound weakness, acute onset ▪ Upper abdominal pain	• Uncooperative patient • Life-threatening conditions • Delay caused by obtaining ECG could compromise care of that patient • 12 lead will impede immediate patient care needs

Procedure:		**Yes**	**No**
1.	Scene safety awareness/PPE usage	☐	☐
2.	States indications/contraindications	☐	☐
3.	Prepares/checks equipment	☐	☐
4.	Explains procedure	☐	☐
5.	Places the patient in a preferred position of comfort (if the patient cannot tolerate being supine, obtain the ECG in Semi-Fowlers or a more upright position)	☐	☐
6.	Instructs the patient to place their arms down by their side and to relax their shoulders	☐	☐
7.	Makes sure the patient's legs are uncrossed	☐	☐
8.	Dries the skin if it's moist or diaphoretic	☐	☐

9.	Shaves any hair that interferes with electrode placement	☐	☐
10.	Places precordial lead electrodes to patient per manufacturer's directions (Figure 1)	☐	☐
11.	Records and print ECG findings per manufacturer's directions	☐	☐
12.	Paramedic interprets ECG, report and document findings (Figure 2) (Step 12 may be omitted with EMT only exam)	☐	☐
13.	Reassess/Document: • Patient • ECG findings • Patient response to intervention	☐	☐
Notes:			

Axial Spinal Immobilization of a Seated Patient

INDICATIONS

Suspected spinal injuries; complaints of spinal pain

Determine if the patient meets criteria for full axial spinal precautions by following the indicators of the following acronym (NSAID):

N – Neuro deficit present?
S – Spinal tenderness?
A – Altered mental status?
I – Intoxication?
D – Distracting injury?

CONTRAINDICATIONS

- No contraindications

CONSIDERATIONS

For pediatric patients: If the level of the patient's head is greater than that of the torso, use an approved pediatric spine board with a head drop or arrange padding in the board to keep the entire lower spine and pelvis in line with the cervical spine and parallel to the board.

For patients being placed on a backboard from the standing or sitting position, consider providing comfort by placing padding on the board.

Any elderly or other adult patients, who may have a spine that is normally flexed forward, should be stabilized in the patient's normal anatomical position considering spinal curvatures.

When a pregnant patient is placed in axial spinal stabilization, the board should be elevated at least four (4) inches on the left side to decrease pressure on the Inferior Vena Cava.

Certain patients may not tolerate normal stabilization positioning due to the location of additional injuries. These patients may require stabilization in their position of comfort. Additional material may be utilized to properly stabilize these patients while providing for the best possible axial spinal alignment.

ALS personnel may remove patients placed in axial spinal stabilization by first responders and BLS personnel if the patient does not meet the NSAID indicators after a complete assessment and documentation on the patient care report should be completed.

Axial Spinal Immobilization of a Seated Patient

Skills Test

Examinee : _____ Date:_____

Examiner: _____ Pass ☐ Pass/Counsel ☐ Fail ☐

Equipment:

- Cervical collar
- Backboard
- Padding (as indicated)
- Backboard straps
- Spinal motion restriction device

Assessment/Treatment indicators:

Indications	**Contraindications**
• Per NSAID acronym	• Per NSAID acronym

Procedure:		**Yes**	**No**
1.	Scene safety awareness/PPE usage	☐	☐
2.	States indications/contraindications	☐	☐
3.	Prepares/checks equipment	☐	☐
4.	Explains procedure	☐	☐
5.	Directs assistant to place/maintain head in the neutral, in-line position	☐	☐
6.	Reassesses motor, sensory, and circulatory function in each extremity	☐	☐
7.	Applies appropriately sized extrication/cervical collar	☐	☐
8.	Positions the immobilization device appropriately	☐	☐
9.	Directs movement of the patient onto the backboard without compromising the integrity of the spine	☐	☐
10.	Applies padding to voids between the torso and the device as necessary	☐	☐
11.	Immobilizes the patient's torso to the device	☐	☐
12.	Evaluates and pads behind the patient's head as necessary	☐	☐
13.	Immobilizes the patient's head to the device	☐	☐
14.	Secures the patient's arms and legs to the device	☐	☐
15.	Reassess/Document: • Patient • Reassessment of motor, sensory, and circulatory function in each extremity • Patient response/tolerance to intervention	☐	☐

Notes:

Axial Spinal Immobilization of a Supine Patient

INDICATIONS

Determine if the patient meets criteria for full axial spinal precautions by following the indicators of the following acronym (NSAID):

N – Neuro deficit present?
S – Spinal tenderness?
A – Altered mental status?
I – Intoxication?
D – Distracting injury?

CONTRAINDICATIONS

- Penetrating trauma without any NSAID indicators are not candidates for spinal immobilization using long board.

CONSIDERATIONS

Maintain spinal alignment on the gurney, or using spinal axial immobilization on an awake, alert and cooperative patient, without the use of a rigid spine board.

For patients being placed in spinal immobilization, provide comfort by placing padding on board

For standing patients with the complaint of neck or back pain; consider placement on a backboard while the patient remains in the standing position, executing the standing takedown technique.

For pediatric patients: use an approved pediatric spine board with a head drop or arrange padding on the board to keep the entire lower spine and pelvis in line with the cervical spine and parallel to the board. All intubated neonatal and pediatric patients should be placed in full axial spinal immobilization.

Any elderly or other adult patients should be stabilized in patient's normal anatomical position.

Pregnant patients placed in axial spinal stabilization, board should be elevated at least four (4) inches on the left side to decrease pressure on the Inferior Vena Cava.

Certain patients may not tolerate normal stabilization positioning due to the location of additional injuries. These patients may require stabilization in their position of comfort.

ALS personnel may remove patients placed in axial spinal stabilization by first responders and BLS personnel if the patient does not meet the NSAID indicators after assessment.

** ***Age of the patient, co-morbidities (osteoporosis, etc.) should always be a priority in the decision-making process.***

** ***The long backboard (LBB) is an extrication tool, whose purpose is to facilitate the transfer of a patient to a transport stretcher and is not intended, or appropriate for achieving spinal stabilization. Judicious application of the LBB for purposes other than extrication necessitates that healthcare providers ensure the benefits outweigh the risks. If a LBB is applied for any reason, patients should be removed as soon as it is safe and practical. LBB does not need to be reapplied on interfacility transfer (IFT) patients.***

Axial Spinal Immobilization of a Supine Patient

Skills Test

Examinee: _____ Date:_____

Examiner: _____ Pass ☐ Pass/Counsel ☐ Fail ☐

Equipment:

- Cervical collar
- Backboard
- Padding (as indicated)
- Backboard straps
- Head bed/ towel rolls / head blocks

Assessment/Treatment indicators:

Indications	**Contraindications**
• Per NSAID acronym	• Per NSAID acronym • Penetrating trauma without any NSAID indicators

Procedure:		**Yes**	**No**
1.	Scene safety awareness/PPE usage	☐	☐
2.	States indications/contraindications	☐	☐
3.	Prepares/checks equipment	☐	☐
4.	Explains procedure	☐	☐
5.	Directs assistant to place/maintain head in the neutral, in-line position	☐	☐
6.	Reassesses motor, sensory, and circulatory function in each extremity	☐	☐
7.	Applies appropriately sized extrication/cervical collar	☐	☐
8.	Positions the immobilization device appropriately	☐	☐
9.	Directs movement of the patient onto the backboard without compromising the integrity of the spine	☐	☐
10.	Applies padding to voids between the torso and the device as necessary	☐	☐
11.	Immobilizes the patient's torso to the device	☐	☐
12.	Evaluates and pads behind the patient's head as necessary	☐	☐
13.	Secures the patient's arms and legs to the device	☐	☐
14.	Immobilizes the patient's head to the device	☐	☐
15.	Reassess/Document: • Patient • Motor, sensory, and circulatory function in each extremity • Patient response/tolerance to intervention	☐	☐

Notes:

Bleeding Control/Shock Management

INDICATIONS

Patient with blunt or penetrating trauma with active hemorrhage

CONTRAINDICATIONS (Relative)

- No contraindications

CONSIDERATIONS

Cut and expose wound
Consider proper equipment needed for specific hemorrhage control
Consider appropriate manufacturer's guidelines for specific tourniquet application
Consider proper equipment needed for the treatment of shock
Destination, time and specialty center required, need for HERT team

** ***Consider oxygen administration (follow oxygen administration guidelines)***

Bleeding Control/Shock Management

Skills Test

Examinee : _____ Date:_____

Examiner: _____ Pass ☐ Pass/Counsel ☐ Fail ☐

Equipment:

- BSI equipment
- Absorbent material
- Bandaging material
- Oxygen/ Oxygen delivery system
- Blanket
- Tourniquets (Swat-T, Soft-T)
- Quik-clot for junctional wounds
- Israli bandages – pressure dressings

Assessment/Treatment indicators:

Indications	**Contraindications**
• Signs of active hemorrhage	• No contraindications

Procedure:		**Yes**	**No**
1.	Scene safety awareness/PPE usage	☐	☐
2.	Applies direct pressure to the wound	☐	☐
	The examiner advises "The wound continues to bleed."		
3.	Applies tourniquet appropriately	☐	☐
	The examiner advises "The patient is now exhibiting signs and symptoms of hypoperfusion."		
4.	Properly positions the patient	☐	☐
5.	Administers high concentration oxygen (According to NAEMT and/or ICEMA protocol)	☐	☐
6.	Initiates steps to prevent heat loss from the patient	☐	☐
7.	Indicates the need for immediate transport	☐	☐
8.	Reassess/Document: • Patient • Motor, sensory, and circulatory function in each extremity • Patient response/tolerance to intervention	☐	☐

Notes:

Blood Glucose Analysis

INDICATIONS

- Altered mental status
- Neurological dysfunction
- History of diabetes
- Vague or general symptoms or complaints
- Need to reassess following treatment of hypoglycemia

CONTRAINDICATIONS (Relative)

Recognize contraindications to blood sampling site selection:

- Signs of local infection
- Wounds or bleeding

CONSIDERATIONS

Reassess unusual and/or unexpected glucometer results

Blood Glucose Analysis

Skills Test

Examinee: _____ Date:_____

Examiner: _____ Pass ☐ Pass/Counsel ☐ Fail ☐

Equipment:

- BSI Equipment / PPE
- Glucometer
- Alcohol preps
- Sharps container
- Lancet(s)
- Bandage

Assessment/Treatment indicators:

Indications	**Contraindications (Relative)**
• Altered Mental Status • Neurological dysfunction • History Diabetes • Vague or General symptoms or complaints • Need to reassess following treatment of hypoglycemia	• Local infection, Wounds or bleeding at blood sampling site

	Procedure:	**Yes**	**No**
1.	Scene safety awareness/PPE usage	☐	☐
2.	States indications/contraindications	☐	☐
3.	Gathers appropriate equipment glucometer, test strip, lancet, alcohol prep	☐	☐
4.	Explains procedure to patient	☐	☐
5.	Prepares glucometer: inserts test strip, ensure glucometer is ready to receive blood	☐	☐
6.	Select appropriate site Adult / Pediatric • Fingertip side Infant (less than one year) • Heel of foot	☐	☐
7.	Use alcohol to clean site, allow site to dry completely before utilizing lancet	☐	☐
8.	Obtain blood sample: prick the site with lancet	☐	☐
9.	Allow blood drop to form, transfer blood sample to the test strip following manufacturer's guidelines	☐	☐

10.	Place lancet in sharps container & apply bandage to site	☐	☐
11.	Announce / Document glucometer result	☐	☐

Notes:

Cardiac Arrest and AED

INDICATIONS

Cardiac/Respiratory Arrest

CONTRAINDICATIONS

- DNR
- POLST directives
- End of Life Option Act

CONSIDERATIONS:

Ensure enough space to properly perform CPR with several rescuers
Remove patient from standing water
Place patient in supine position
Determine probable cause of the arrest

** ***AED patches should not be placed over implanted medical devices, jewelry or transdermal medication patches***

Cardiac Arrest and AED

Skills Test

Examinee: _____ Date:_____

Examiner: _____ Pass ☐ Pass/Counsel ☐ Fail ☐

Equipment:

- PPE
- AED

Assessment/Treatment indicators:

Indications	**Contraindications**
• Cardiac/Respiratory arrest	• DNR • POLST directives • End of Life Option Act

Procedure:		**Yes**	**No**
1.	Scene safety awareness/PPE usage	☐	☐
2.	States indications/contraindications	☐	☐
3.	Prepares/checks equipment	☐	☐
4.	Explains procedure	☐	☐
5.	Attempts to obtain information about event from bystanders	☐	☐
6.	Checks patient responsiveness	☐	☐
7.	Assesses patient for signs of breathing (agonal, apneic, gasping)	☐	☐
8.	Checks carotid pulse for no less than 5, no more than 10 seconds	☐	☐
9.	Immediately begins chest compressions with appropriate rate and depth while allowing for complete chest recoil	☐	☐
10.	Requests additional assistance (as needed)	☐	☐
11.	Performs 2 minutes (5 cycles) of high quality (1 or 2-person) CPR	☐	☐
12.	After 2 minutes, switches out rescuer performing compressions	☐	☐
13.	When AED arrives, first rescuer turns it on	☐	☐
14.	Follows initial AED prompts	☐	☐
15.	Correctly attaches pads to patient ** ***Avoids placing pads over implanted medical devices or medication patches***	☐	☐
16.	Follows additional AED prompts to clear and analyze rhythm	☐	☐
17.	If shock advised, ensures the patient is clear of all bystanders and provides shock per AED instructions	☐	☐

18.	Ensures effective chest compressions are immediately resumed	☐	☐
19.	Reassess/Document: • Patient • Patient response/tolerance to interventions	☐	☐
Notes:			

HARE Traction Splint Device

INDICATIONS

- Painful, swollen, deformed mid-thigh with no joint or lower leg injury

CONTRAINDICATIONS

- Open fracture
- Pelvis, hip, knee, ankle injury
- Excessive avulsion
- Partial amputation

CONSIDERATIONS

Utilize three rescuers to apply a traction splint, if possible

HARE Traction Splint

Skills Test

Examinee: _____ Date:_____

Examiner: _____ Pass ☐ Pass/Counsel ☐ Fail ☐

Equipment:

- PPE
- HARE Traction Splint

Assessment/Treatment indicators:

Indications	**Contraindications**
• Painful, swollen, deformed mid-thigh with no joint or lower leg injury	• Open fracture • Pelvis, hip, knee, ankle injury • Excessive avulsion • Partial amputation

	Procedure:	**Yes**	**No**
1.	Scene safety awareness/PPE usage	☐	☐
2.	States indications/contraindications	☐	☐
3.	Prepares/checks equipment	☐	☐
4.	Explains procedure	☐	☐
5.	Directs assistant to stabilize the injured leg	☐	☐
6.	Exposes the injured extremity	☐	☐
7.	Removes shoe and sock on injured leg	☐	☐
8.	Checks the circulation, motor and sensory function distal to the injury before moving leg or applying traction	☐	☐
9.	Positions the device parallel to the uninjured leg and adjusts the length to 10 inches beyond the foot	☐	☐
10.	Spaces the straps to support the upper and lower leg	☐	☐
11.	Applies the foot strap to the injured leg	☐	☐
12.	While supporting the fracture site, directs the assistant to elevate the injured leg while maintaining continuous traction	☐	☐
13.	Positions the device under the injured leg with the top portion firmly against the ischium	☐	☐
14.	Directs the assistant to lower the leg onto the device while maintaining traction	☐	☐
15.	Secures the groin strap prior to application of mechanical traction	☐	☐
16.	Attaches the foot strap rings to winch and twists knob to apply mechanical traction	☐	☐

17.	Releases manual traction after the mechanical traction is applied	☐	☐
18.	Rechecks the circulation, motor and sensory function distal to the injury	☐	☐
19.	Splints the fracture without excessive motion of the leg	☐	☐
20.	Immobilizes the patient's hip joint to backboard or equivalent, if spinal precautions not already in place	☐	☐
21.	Secures the limb straps and mechanical traction device. Does not strap over the fracture site or knee	☐	☐
22.	Reassess/Document: • Patient • Patient response/tolerance to interventions	☐	☐
Notes:			

Intramuscular Medication Administration

INDICATIONS

- Unable to establish IV for medication administration
- Desired route for administration of medication

CONTRAINDICATIONS (Relative)

If any of the following are noted at the site select a different site:

- Masses
- Tenderness
- Bruising
- Infection
- Abrasions
- Swelling

Intramuscular Medication Administration

Skills Test

Examinee: _____ Date: _____

Examiner: _____ Pass ☐ Pass/Counsel ☐ Fail ☐

Equipment:

- BSI equipment
- Syringe
- Alcohol Prep
- Safety Needles (*20-25g; 5/8 to 1 ½ inches in length*)
- Bandage

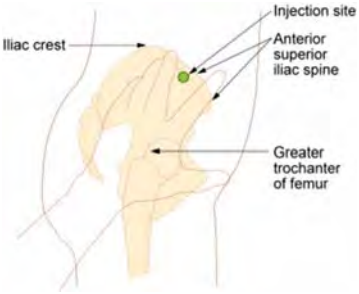
Assessment/Treatment indicators:

Indications	**Contraindications (relative to site)**
• Unable to establish IV for medication administration • Desired route for administration of medication	• Masses • Tenderness • Bruising • Infection • Abrasions • Swelling

Procedure:		**Yes**	**No**
1.	Scene safety awareness/PPE usage	☐	☐
2.	States indications/contraindication	☐	☐
3.	Prepares and checks equipment	☐	☐
4.	Explains procedure to patient/family	☐	☐
5.	Inspects desired site for contraindications	☐	☐
6.	Chooses appropriate medication	☐	☐
7.	Inspect site for sufficient muscle mass	☐	☐
8.	Withdraws medication	☐	☐
8a.	Verbalizes no more than recommended solution per site: **Deltoid** (Upper Arm) (**2ml**) **Vastus Lateralis** (Anterior Thigh) (**3mL**) **Ventrogluteal** (Lateral Hip) (**3mL**)	☐	☐
9.	Position patient and prepare site	☐	☐
10.	Remove air from needle (Push slightly on the plunger to bring a drop of solution to the level of the bevel of the needle)	☐	☐
11.	Support the muscle to be injected (Without contaminating the site spread skin tight with non-dominant hand)	☐	☐
12.	Insert needle with a dart like motion into site at 90° angle and stabilize hub of syringe and aspirate for no blood return (no blood return indicates proper placement)	☐	☐

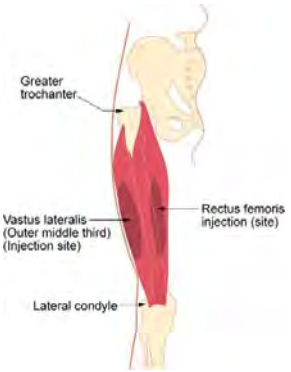
13.	Slowly inject medication to reduce pain and tissue trauma	☐	☐
14.	Withdraw needle and properly disposes needle and syringe	☐	☐
15.	Applies direct pressure, massages site and apply bandage as needed	☐	☐
13.	Reassess/Document: • Patient • Medication and dosage given • Administration success • Patient response/tolerance to intervention	☐	☐
Notes:			

Ventrogluteal



Recommended needle length is based on patient weight and body mass index. Thin adult may require a 16 mm to 25 mm (5/8 to 1 inch) needle, average adult may require a 25 mm (1 inch) needle, larger adult (over 70 kg) may require a 25 mm to 38 mm (1 to 1 1/2 inch) needle. Children and infants will require shorter needles.

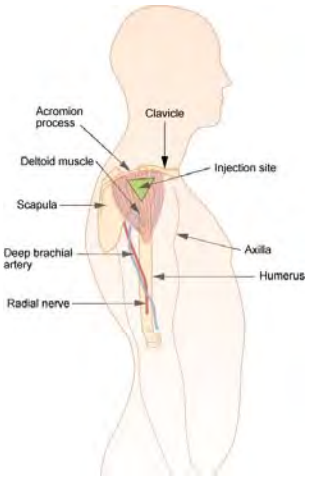
For the ventrogluteal muscle of an average adult, give up to 3 ml of medication.



Vastus Lateralis

Recommended needle length for an adult is 25 mm to 38 mm (1 to 1 1/2 inch). A smaller gauge needle (22 to 25 gauge) should be used with children.

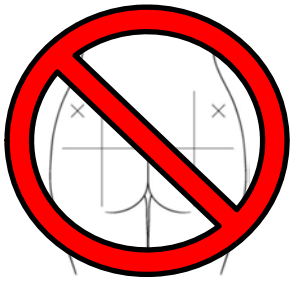
The maximum amount of medication for a single injection is 3 ml.



Deltoid

Select needle length based on age, weight, and body mass. In general, for an adult male weighing 60 to 118 kg (130 to 260 lbs), a 25 mm (1 inch) needle is sufficient. For women under 60 kg (130 lbs), a 16 mm (5/8 inch) needle is sufficient, while for women between 60 and 90 kg (130 to 200 lbs), a 25 mm (1 inch) needle is required. A 38mm (1 1/2 inch) length needle may be required for women over 90 kg (200 lbs) for a deltoid IM injection. The maximum amount of medication for a single injection is 1 ml.

Dorsalgluteal muscle (Gluteus Maximus)



NEVER give an IM injection in the dorsogluteal muscle.

If the needle hits the sciatic nerve, the patient may experience **partial or permanent** paralysis of the leg.

AJN, American Journal of Nursing, April 1996, Volume: 96 Number 4, page 53 retrieved from: https://www.nursingcenter.com/journalarticle?Article_ID=102892&Journal_ID=54030&Issue_ID=54821

https://opentextbc.ca/clinicalskills/chapter/6-8-iv-push-medications-and-saline-lock-flush/

Data source: Berman & Snyder, 2016; Davidson & Rourke, 2014; Ogston-Tuck, 2014a; Perry et al., 2014

Intranasal Medication Administration

INDICATIONS

Unable to establish IV for medication administration

Desired route for administration of medication

CONTRAINDICATIONS (Relative)

- Significant nasal trauma
- Significant amount of blood or dried mucous discharge

Intranasal Medication Administration

Skills Test

Examinee: _____ Date:_____

Examiner: _____ Pass ☐ Pass/Counsel ☐ Fail ☐

Equipment:

- BSI Equipment
- Mucosal Atomization Device (MAD) or other IN medication device

Assessment/Treatment indicators:

Indications	**Contraindications**
• Unable to establish IV for medication administration • Desired route for administration of medication	• Significant nasal trauma • Significant amount of blood or dried mucous discharge

Procedure:		**Yes**	**No**
1.	Scene safety awareness/PPE usage	☐	☐
2.	States indications/contraindications	☐	☐
3.	Prepares/checks equipment	☐	☐
4.	Explains procedure to patient/family	☐	☐
5.	Inspects the nostril for significant amount of mucus and/or blood	☐	☐
6.	Chooses appropriate medication	☐	☐
7.	Withdraws medication	☐	☐
8.	Places the administration end of IN device in the nostril (If repeating dose, if possible, use opposite nostril)	☐	☐
	8a. Verbalizes no more than 1mL of solution should be administered in each nostril	☐	☐
9.	Reassess/Document: • Patient • Medication and dosage given • Administration success • Patient response/tolerance to intervention	☐	☐

Notes:

Joint Immobilization

INDICATIONS

Signs of possible dislocation or fracture of a joint including pain, deformity, crepitus, or swelling to a joint

CONTRAINDICATIONS (Relative)

- No contraindications

CONSIDERATIONS

Cut and expose affected extremity
Prepare equipment for joint immobilization

Joint Immobilization

Skills Test

Examinee: _____ Date:_____

Examiner: _____ Pass ☐ Pass/Counsel ☐ Fail ☐

Equipment:

- BSI equipment
- Splint, roller bandage, and/or tape
- Padding

Assessment/Treatment indicators:

Indications	**Contraindications**
• Signs of possible dislocation or fracture of joint deformity, crepitus, or swelling of joint.	• No contraindications

Procedure:		**Yes**	**No**
1.	Scene safety awareness/PPE usage	☐	☐
2.	Directs application of manual stabilization of injury	☐	☐
3.	Assesses distal motor, sensory, or circulatory functions in the injured extremity, compares with uninjured extremity	☐	☐
	The examiner advises “Motor, sensory and circulatory functions are present and normal.”		
4.	Selects the proper splinting material	☐	☐
5.	Immobilizes the site of injury	☐	☐
6.	Immobilizes the bone above the injury site	☐	☐
7.	Immobilizes the bone below the injury site	☐	☐
8.	Secures the entire injured extremity is secured	☐	☐
9.	Reassesses distal motor, sensory and circulatory functions in the injured extremity	☐	☐
10.	Reassess/Document: • Patient, pain scale • Patient response/tolerance to interventions	☐	☐
	The examiner advises “Motor, sensory and circulatory functions are present and normal.		

Notes:

King Airway Device (Perilaryngeal)

INDICATIONS

Use of King Airway may be performed on those patients who meet **ALL** of the following:

Unresponsive and apneic (less than 6 breaths per minute)
No gag reflex
Appropriately sized airway

Height	Weight	Size	Connector Color	Recommended Air Volume
• 35-45”	or 12-15kg:	Size 2	GREEN	23-35mL
• 41-51”	or 25-35kg:	Size 2.5	ORANGE	30-40 mL
• 48-60”	or 4-5 feet:	Size 3	YELLOW	60 mL
• 60-72”	or 5-6 feet:	Size 4	RED	80 mL
• ≥ 72”	or ≥6 feet:	Size 5	PURPLE	90 mL

CONTRAINDICATIONS

- Conscious patients with an intact gag reflex
- Known ingestion of caustic substances
- Suspected foreign body airway obstruction (FBAO)
- Facial and/or esophageal trauma
- Patients with known esophageal disease (cancer, varices, surgery, etc.)

CONSIDERATIONS

No considerations

King Airway Device (Perilaryngeal)

Skills Test

Examinee: _____ Date: _____

Examiner: _____ Pass ☐ Pass/Counsel ☐ Fail ☐

Equipment:

- Appropriately sized King LTS-D
- Syringe
- BVM
- Water based lubricant

Assessment/Treatment indicators:

Indications

Use of King Airway may be performed on those patients who meeting **ALL** of the following:

- Unresponsive and apneic (less than 6 breaths per minute)
- No gag reflex
- Appropriately sized airway

Contraindications

- Conscious patients with an intact gag reflex
- Known ingestion of caustic substances
- Suspected foreign body airway obstruction (FBAO)
- Facial and/or esophageal trauma
- Patients with known esophageal disease (cancer, varices, surgery, etc.)

Procedure:		**Yes**	**No**
1.	Scene safety awareness/PPE usage	☐	☐
2.	States indications/contraindications	☐	☐
3.	Prepares/checks equipment	☐	☐
4.	Explains procedure	☐	☐
5.	Chooses the appropriately sized King Airway based on patient height	☐	☐
6.	Tests cuff inflation system by injecting the maximum recommended volume of air into the cuffs (Prior to insertion, disconnect valve actuator from inflation valve and remove all the air from both cuffs)	☐	☐
7.	Applies water-based lubricant to the beveled distal tip and posterior aspect of the tube taking care to avoid introduction of lubricant in or near the ventilator openings	☐	☐
8.	Pre-oxygenates patient with 100% oxygen through BVM	☐	☐
9.	Positions patient in the “sniffing position”, if no cervical spine injury suspected	☐	☐
10.	Holds the KING LTS-D at the connector with dominant hand (with non-dominate hand, hold mouth open and apply chin lift)	☐	☐
11.	With the KING LTS-D rotated laterally 45-90%, introduces tip into mouth and advance behind base of tongue	☐	☐
12.	Rotates the tube back to the midline as the tip reaches the posterior wall of the pharynx	☐	☐
13.	Advances KING LTS-D until base of connector is aligned with teeth or gums without exerting excessive force	☐	☐

14.	Holding the KLT 900 cuff pressure gauge in non-dominant hand, inflates cuffs of the KING LTS-D to the minimum volume necessary to seal the airway at the peak ventilator pressure	☐	☐
15.	Attaches the breathing circuit to the 15 mm connector of the KING LTS-D	☐	☐
16.	While gently bagging the patient to assess ventilation, simultaneously withdraws the airway until ventilation is easy and free flowing	☐	☐
17.	Reference marks are provided at the proximal end of the KING LTS-D which when aligned with the upper teeth given an indication of the depth of insertion	☐	☐
18.	Confirms proper position by auscultation, chest movement and/or verification of CO_2 by capnography	☐	☐
19.	Adjusts cuff inflation to seal volume	☐	☐
20.	Secures KING LTS-D to patient	☐	☐
21.	Reassess/Document: • Patient • Airway insertion • Depth of insertion • Confirmation of proper insertion (auscultation, chest movement, $ETCO_2$) • Patient response/tolerance to intervention	☐	☐
Notes:			

Neonate Resuscitation Post Delivery

INDICATIONS

Cardiac/Respiratory Arrest post delivery

CONTRAINDICATIONS

- Known still birth

CONSIDERATIONS:

Two patients
Have second EMS personnel support mother emotionally
Continued medical support for mother

Neonate Resuscitation Post Delivery

Skills Test

Examinee: _____ Date: _____

Examiner: _____ Pass ☐ Pass/Counsel ☐ Fail ☐

Equipment:

- BSI Equipment / PPE
- Obstetric Kit
- Infant BVM
- Oxygen
- OPA

Assessment/Treatment indicators:

Indications	Contraindications
• Cardiac / Respiratory arrest post-delivery to neonate	• Known still birth

Procedure:		Yes	No
1.	After birth assess new born: good tone, breathing or crying Check heart rate >60 if <60 continue to #3	☐	☐
2.	If infant is breathing appropriate rate or crying: Warm and maintain normal temperature, position airway, clear secretions if needed, dry. Then give to mother for continued care.	☐	☐
3.	If not breathing or agonal respirations Airway: Open airway, suction if needed, position Breathing: Provide oxygen in high concentration, nonrebreather or assist ventilations as indicated (e.g., BVM) Circulation: Assess perfusion, perform chest compressions as indicated (i.e. HR <60/min with poor perfusion). All rates and procedures shall adhere to AHA guidelines.	☐	☐
4.	Emotional support to mother and family.	☐	☐
5.	Continue to reassess and transport; keep infant warm.	☐	☐

Notes:

OB/Emergency Childbirth

INDICATIONS

Patient with complaint of severe abdominal pain and signs of imminent birth

CONTRAINDICATIONS (Relative)

Consider rapid transport if the following is found:

- Mother has uncontrolled hemorrhage with no imminent signs of delivery
- Limb or cord presentation is visualized at the vaginal opening

CONSIDERATIONS:

Assess the patient by asking the following questions:

a) Have you had prenatal care?
b) Have you had any past pregnancies?
c) How many live deliveries have you had in the past?
d) What is your expected due date?
e) Do you have the urge to bare down?
f) Have you had excessive fluid; BOW broken or plug passed?
g) What have been the length and frequency of contractions?
h) Are there any expected complications?

Consider preparing for in place delivery if the following is found:

Mother has the urge to push
Mother states water has broken
Bulging or crowning of the perineum is noted
Contractions are less than three minutes apart lasting 30 seconds or longer

Place the patient in a supine or semi-Fowler's position

Instruct the patient to focus on breathing and notify you when contractions start and stop

OB/Emergency Childbirth

Skills Test

Examinee: _____ Date:_____

Examiner: _____ Pass ☐ Pass/Counsel ☐ Fail ☐

Equipment:

- BSI equipment
- Obstetric kit

Assessment/Treatment indicators:

Indications	**Contraindications**
• Signs of imminent delivery • History of pregnancy with urge to push or bear down	• Limb presentation at vaginal opening • Respiratory or cardiac failure

Procedure:		**Yes**	**No**
1.	Scene safety awareness/PPE usage	☐	☐
2.	States indications/contraindications	☐	☐
3.	Asks patient appropriate assessment questions	☐	☐
4.	Explains and reassures the need to check for crowning or abnormal bleeding	☐	☐
5.	Observes for presentation of prolapsed cord or abnormal presentation	☐	☐
6.	Opens OB kit, cleans and drapes the area, being sure to keep a sterile zone	☐	☐
7.	Appropriately dons sterile gloves	☐	☐
8.	Explains procedure to patient before placing one hand to the baby's head applying gentle pressure to prevent explosive birth	☐	☐
9.	Uses second hand to apply gentle pressure to the perineum to prevent tearing of the opening	☐	☐
10.	Observes for nuchal cord	☐	☐
	The examiner advises "The cord is wrapped around the baby's neck."		
11.	Loosens and slips cord over baby's head	☐	☐
12.	Suctions mouth, then nose (once head is delivered)	☐	☐
13.	Applies gentle upward and downward pressure to head to help release the upper shoulders	☐	☐
14.	Once delivery is complete, holds baby securely	☐	☐
15.	Notes the time of birth and initial A-P-G-A-R	☐	☐
	The examiner advises "The baby is out, has a pulse, but is not breathing."		
16.	Provides tactile stimulation while drying the baby and rubbing the feet	☐	☐
	The examiner notifies "The baby is now crying."		

17.	Wraps the baby in a blanket, places hat on baby's head for warmth	☐	☐
18.	Verifies cord is no longer pulsating, clamps cord approximately 6 and 8 inches away from baby, verbalizing the cutting of the cord	☐	☐
19.	Gives baby to mother/encourages bonding and warmth	☐	☐
20.	Massages fundus, states why this is necessary	☐	☐
21.	Mother delivers placenta; places placenta in biohazard safe bag	☐	☐
22.	Places sanitary pad; have mom lower and close legs and assume position of comfort	☐	☐
23.	Addresses the need to observe and treat possible bleeding control of mother	☐	☐
24.	Reassess/Document: • Patient • Newborn, document A-P-G-A-R at 1 and 5 minutes	☐	☐

Apgar Scoring System

Indicator		0 Points	1 Point	2 Points
A	Activity (muscle tone)	Absent	Flexed arms and legs	Active
P	Pulse	Absent	Below 100 bpm	Over 100 bpm
G	Grimace (reflex irritability)	Floppy	Minimal response to stimulation	Prompt response to stimulation
A	Appearance (skin color)	Blue; pale	Pink body, Blue extremities	Pink
R	Respiration	Absent	Slow and irregular	Vigorous cry

**** Assess Apgar at 1 and 5 minutes on all newborns**

https://www.abclawcenters.com/practice-areas/diagnostic-tests/apgar-score-for-assessment-of-the-newborn/

Oxygen Administration

INDICATIONS

Patient complains of shortness of breath and/or chest pain

Signs and symptoms of chronic pulmonary disease, shortness of breath, coughing, wheezing, desaturation, pursed lip breathing, anxiety, accessory muscle use, cyanosis, decreased breath sounds, or ALOC

CONTRAINDICATIONS

- No contraindications, be cautious of potential for hyper-oxygenation

CONSIDERATIONS

Oxygen needs of the patient
Verbalizes oxygen parameters set forth by ICEMA:

- Hypoxia: Titrate 0_2 at lower rate to maintain $SP0_2$ at 94%
  - **Verbalizes understanding: No 0_2 for $SP0_2$ >95%**

- COPD: Titrate 0_2 at lower rate to maintain $SP0_2$ at 90%
  - **Verbalizes understanding: No 0_2 for $SP0_2$ >91%**

Oxygen Administration

Skills Test

Examinee: _____ Date: _____

Examiner: _____ Pass ☐ Pass/Counsel ☐ Fail ☐

Equipment:

- PPE
- Nasal cannula, simple mask or Non-rebreather mask
- Oxygen tank
- Oxygen regulator
- Monitor with SpO2 capabilities

Assessment/Treatment indicators:

Indications	**Contraindications**
• Patient complains of shortness of breath and/or chest pain • Signs and symptoms of chronic pulmonary disease, shortness of breath, coughing, wheezing, desaturation, pursed lip breathing, anxiety, accessory muscle use, cyanosis, decreased breath sounds, or ALOC	• No contraindications

Procedure:		**Yes**	**No**
1.	Scene safety awareness/PPE usage	☐	☐
2.	States indications/contraindications	☐	☐
3.	Prepares/checks equipment	☐	☐
4.	Checks the "five patient rights, plus one" • Right patient • Right medication **D**-Dose/Drug • Right dose **I**- Integrity of packaging • Right route **C**-Clarity of solution • Right time **E**-Expiration Date • Allergies	☐	☐
5.	Explains procedure	☐	☐
6.	Gathers appropriate equipment (i.e. oxygen tank, nasal cannula, simple mask, non-rebreather mask)	☐	☐
7.	Cracks valve on the oxygen tank	☐	☐
8.	Assembles the regulator to the oxygen tank	☐	☐
9.	Opens the oxygen tank valve	☐	☐
10.	Checks the oxygen tank pressure	☐	☐
11.	Checks for leaks	☐	☐
12.	Attaches (nasal cannula, simple or non-rebreather mask) to correct port of regulator	☐	☐
13.	Adjusts regulator to ensure oxygen flow rate appropriately per delivery device • Nasal cannula – 1 to 6 LPM • Simple mask – 8 to 12 LPM	☐	☐

	• Non-rebreather mask – 6 to 15 LPM		
14.	Attaches adjunct to patients face and adjusts to patient comfort	☐	☐
15.	Reassess/Document: • Patient • Lung sounds • SpO2 and CO_2 monitoring • Patient tolerance/response to intervention	☐	☐
Notes:			

Patient Assessment/Management-MEDICAL

INDICATIONS

Patient with a medical complain

CONTRAINDICATIONS (Relative)

- No contraindications

CONSIDERATIONS

Considers stabilization of the spine as needed

Patient Assessment/Management-MEDICAL

Skills Test

Examinee: _____ Date:_____

Examiner: _____ Pass ☐ Pass/Counsel ☐ Fail ☐

Equipment:

- BSI Equipment

Assessment/Treatment indicators:

Indications	**Contraindications**
• Patient with a medical complaint	• No contraindications

Procedure:		**Yes**	**No**
	SCENE SIZE-UP		
1.	Scene safety awareness/PPE usage	☐	☐
2.	Determines the scene/situation is safe	☐	☐
3.	Determines the nature of illness	☐	☐
4.	Determines the number of patients	☐	☐
5.	Requests additional EMS assistance if necessary	☐	☐
6.	Considers stabilization of the spine	☐	☐
	PRIMARY SURVEY/RESUSCITATION		
7.	Verbalizes general impression of the patient	☐	☐
8.	Determines responsiveness/level of consciousness (AVPU)	☐	☐
9.	Determines chief complaint/apparent life-threats	☐	☐
10.	Assesses airway and breathing • Assures adequate ventilation • Initiates appropriate oxygen therapy	☐	☐
11.	Assesses circulation • Assesses for and controls major bleeding • Checks pulse • Assesses skin (color, temperature or condition)	☐	☐
12.	Identifies patient priority and makes treatment/transport decision	☐	☐
	HISTORY TAKING		
13.	Obtains history of the present illness • Onset • Provocation • Quality • Radiation • Severity • Time • Clarifying questions of associated signs and symptoms related to O-P-Q-R-S-T	☐	☐

14.	Obtains or attempts to obtain past medical history • Signs/Symptoms • Allergies • Medications • Past pertinent history • Last oral intake • Events leading to present illness	☐	☐
SECONDARY ASSESSMENT			
15.	Assesses affected body part/system • Cardiovascular • Neurological • Integumentary • Reproductive • Pulmonary • Musculoskeletal • GI/GU • Psychological/Social	☐	☐
VITAL SIGNS			
16.	Obtains or delegates the blood pressure, pulse, respiratory rate, quality and effort	☐	☐
17.	States field impression of patient	☐	☐
18.	Interventions (verbalizes proper interventions/treatment)	☐	☐
REASSESSMENT			
19.	Reassess/Document: • Patient • Changes in patient's condition or vital signs • Patient response/tolerance to assessment and interventions	☐	☐
20.	Provides accurate verbal report to arriving EMS unit	☐	☐
Notes:			

Patient Assessment/Management-TRAUMA

INDICATIONS

Patient with blunt or penetrating trauma

CONTRAINDICATIONS (Relative)

- No contraindications

CONSIDERATIONS

Considers stabilization of the spine

Patient Assessment/Management-TRAUMA

Skills Test

Examinee: _____ Date:_____

Examiner: _____ Pass ☐ Pass/Counsel ☐ Fail ☐

Equipment:

- BSI Equipment

Assessment/Treatment indicators:

Indications	**Contraindications**
• Patient with possible or confirmed blunt or penetrating trauma	• No contraindications

	Procedure:	**Yes**	**No**
SCENE SIZE-UP			
1.	Scene safety awareness/PPE usage	☐	☐
2.	Determines the scene/situation is safe	☐	☐
3.	Determines the mechanism of injury	☐	☐
4.	Determines the number of patients	☐	☐
5.	Requests additional EMS assistance if necessary	☐	☐
6.	Considers axial spinal stabilization, delegates as needed	☐	☐
PRIMARY SURVEY/RESUSCITATION			
7.	Verbalizes general impression of the patient	☐	☐
8.	Determines responsiveness/level of consciousness	☐	☐
9.	Determines chief complaint/apparent life-threats	☐	☐
10.	Airway • Opens and assesses • Inserts adjunct as indicated	☐	☐
11.	Breathing • Assesses breathing • Assures adequate ventilation • Initiates appropriate oxygen therapy • Manages any injury which may compromise breathing/ventilation	☐	☐
12.	Circulation • Checks pulse • Assesses skin (color, temperature or condition) • Assesses for and controls major bleeding if present • Initiates shock management (positions patient properly, conserves body heat)	☐	☐

13.	Calculates GCS	☐	☐
14.	Identifies patient priority and makes treatment/transport decision (based upon calculated GCS)	☐	☐
HISTORY TAKING			
15.	Attempts to obtain SAMPLE history	☐	☐
SECONDARY ASSESSMENT			
16.	Head • Inspects and palpates scalp and ears, mastoid areas • Assesses eyes, pupils • Inspects mouth, nose and facial area	☐	☐
17.	Neck • Checks position of trachea • Checks jugular veins • Palpates cervical spine	☐	☐
18.	Chest • Inspects and palpates chest • Auscultates lung sounds	☐	☐
19.	Abdomen/pelvis • Inspects and palpates abdomen • Assesses pelvis • Verbalizes assessment of genitalia/perineum as needed	☐	☐
20.	Lower extremities • Inspects, palpates and assesses distal motor, sensory and circulatory functions	☐	☐
21.	Upper extremities • Inspects, palpates and assesses distal motor, sensory and circulatory functions	☐	☐
22.	Posterior thorax, lumbar and buttocks • Inspects and palpates posterior thorax • Inspects and palpates lumbar and buttocks areas	☐	☐
VITAL SIGNS			
23.	Obtains baseline vital signs (must include BP, P and R) • Includes temperature if patient is a potential TXA recipient	☐	☐
24.	Manages secondary injuries and wounds appropriately	☐	☐
25.	Verbalizes how and when to reassess the patient	☐	☐
REASSESSMENT			
26.	Reassess/Document: • Patient • Lung sounds • SpO2 and CO_2 monitoring • Patient tolerance/response to intervention	☐	☐
Notes:			

Penetrating Trauma

INDICATIONS

Open chest wound that requires rapid initial care

CONTRAINDICATIONS (Relative)

- Uncontrolled hemorrhage from chest wound.

CONSIDERATIONS

Penetrating Trauma

Skills Test

Examinee: _____ Date: _____

Examiner: _____ Pass ☐ Pass/Counsel ☐ Fail ☐

Equipment:

- PPE
- Occlusive dressing
- Tape
- Stethoscope

Assessment/Treatment indicators:

Indications	**Contraindications**
• Open chest would due to penetrating trauma	• Uncontrolled hemorrhage from chest wound

Procedure:		**Yes**	**No**
1.	Scene safety awareness/PPE usage	☐	☐
2.	States indications/contraindications	☐	☐
3.	Prepares/checks equipment	☐	☐
4.	Explains procedure	☐	☐
5.	Maintain an open airway and provide basic life support if necessary	☐	☐
6.	Expose chest	☐	☐
7.	Remove occlusive dressing from packaging	☐	☐
8.	Place occlusive dressing over wound creating a seal on all sides. If no dressing is available use gloved hand to create temporary seal	☐	☐
9.	Assess for signs of tension pneumothorax. Remove dressing if signs of tension pneumothorax develop	☐	☐
10.	Administer high flow oxygen if indicated	☐	☐
11.	Auscultate lung sounds	☐	☐
12.	Treat for shock	☐	☐
13.	Place patient in position of comfort: • Upright-due to respiratory distress • Shock position if signs of shock appear • On affected side if possible, this allows the injured lung to expand without restriction	☐	☐

14.	Transport immediately	☐	☐
15.	Reassess/Document: • Patient • Lung sounds • Placement verification • SpO2 and CO_2 monitoring • Patient response/tolerance to intervention	☐	☐
Notes:			

Pulse Oximetry

INDICATIONS

Chief complaint of respiratory, cardiovascular and neurological complications

Abnormal vital signs

Trauma patients

Any patient that would benefit from monitoring

CONTRAINDICATIONS

- No contraindications

CONSIDERATIONS

Remove nail polish if necessary; alcohol prep may be used for this

Pulse Oximetry

Skills Test

Examinee: _____ Date: _____

Examiner: _____ Pass ☐ Pass/Counsel ☐ Fail ☐

Equipment:

- PPE
- Pulse oximetry sensor
- Monitor with SpO_2 capabilities

Assessment/Treatment indicators:

Indications	**Contraindications**
• Patient complaints of respiratory, cardiovascular and neurological complications • Abnormal vital signs • Trauma patients • Any patient, medic feels would benefit from monitoring	• No contraindications

Procedure:		**Yes**	**No**
1.	Scene safety awareness/PPE usage	☐	☐
2.	States indications/contraindications	☐	☐
3.	Prepares/checks equipment	☐	☐
4.	Explains procedure	☐	☐
5.	Gathers appropriate equipment (monitor, pulse oximetry sensor)	☐	☐
6.	Removes nail polish as needed	☐	☐
7.	Applies adhesive sensor or clip sensor to finger	☐	☐
8.	Utilizes monitor to provide pulse oximetry reading (normal = 94% - 98%)	☐	☐
9.	Reassess/Document: • Patient • Lung sounds • Placement verification • SpO2 and CO_2 monitoring • Patient response/tolerance to intervention	☐	☐

Notes:

SAGER Traction Splint

INDICATIONS

- Painful, swollen, deformed mid-thigh with no joint or lower leg injury

CONTRAINDICATIONS

- Open fracture
- Pelvis, hip, knee, ankle injury
- Excessive avulsion
- Partial amputation

CONSIDERATIONS

Utilize three rescuers to apply a traction splint, if possible

SAGER Traction Splint

Skills Test

Examinee: _____ Date:_____

Examiner: _____ Pass ☐ Pass/Counsel ☐ Fail ☐

Equipment:

- PPE
- HARE Traction Splint

Assessment/Treatment indicators:

Indications	**Contraindications**
• Painful, swollen, deformed mid-thigh with no joint or lower leg injury	• Open fracture • Pelvis, hip, knee, ankle injury • Excessive avulsion • Partial amputation

	Procedure:	**Yes**	**No**
1.	Scene safety awareness/PPE usage	☐	☐
2.	States indications/contraindications	☐	☐
3.	Prepares/checks equipment	☐	☐
4.	Explains procedure	☐	☐
5.	Directs assistant to stabilize the injured leg	☐	☐
6.	Exposes the injured extremity	☐	☐
7.	Removes shoe and sock on injured leg	☐	☐
8.	Checks the circulation, motor and sensory function distal to the injury before moving leg or applying traction	☐	☐
9.	Places the device between patient's legs, resting the cushion against the groin and applies the groin strap	☐	☐
10.	Folds the pads on the ankle hitch as needed to fit the patient. Applies and secures under the foot	☐	☐
11.	Extends the device, providing approximately 10% of the patient's body weight in axial traction (Max 15 pounds for single leg or 25 pounds bilateral)	☐	☐
12.	Applies leg straps; one over the mid-thigh, one over the knee, and one over the lower leg	☐	☐
13.	Applies the foot strap or cravat around both feet to prevent rotation	☐	☐
14.	Directs the assistant to lower the leg onto the device while maintaining traction	☐	☐
15.	Secures the groin strap prior to application of mechanical traction	☐	☐
16.	Attaches the foot strap rings to winch and twists knob to apply mechanical traction	☐	☐

17.	Releases manual traction after the mechanical traction is applied	☐	☐
18.	Rechecks the circulation, motor and sensory function distal to the injury	☐	☐
19.	Splints the fracture without excessive motion of the leg	☐	☐
20.	Immobilizes the patient's hip joint to backboard or equivalent, if spinal precautions not already in place	☐	☐
21.	Secures the limb straps and mechanical traction device. Does not strap over the fracture site or knee	☐	☐
22.	Reassess/Document: • Patient • Patient response/tolerance to interventions	☐	☐
Notes:			

Subcutaneous Medication Administration

INDICATIONS

- Desired route for administration of medication

CONTRAINDICATIONS (Relative)

If any of the following are noted at the site select a different site:

- Evisceration
- Masses
- Tenderness
- Bruising
- Infection
- Abrasions
- Swelling

Subcutaneous Medication Administration

Skills Test

Examinee: _____ Date: _____

Examiner: _____ Pass ☐ Pass/Counsel ☐ Fail ☐

Equipment:

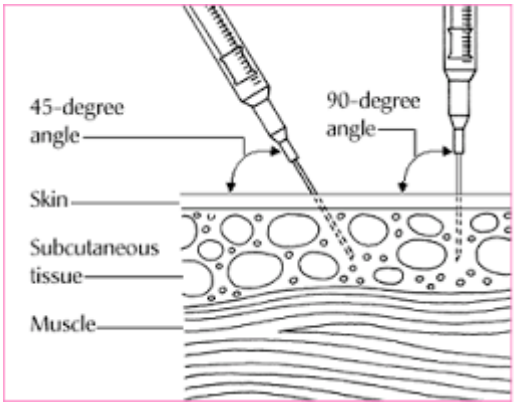
- BSI equipment
- Syringe
- Alcohol Prep
- Safety Needles (25g 1/2 -7/8 inch)
- Bandage

Assessment/Treatment indicators:

Indications	**Contraindications (relative to site)**
• Desired route for administration of medication	• Evisceration • Masses • Tenderness • Bruising • Infection • Abrasions • Swelling

Procedure:		**Yes**	**No**
1.	Scene safety awareness/PPE usage	☐	☐
2.	States indications/contraindication	☐	☐
3.	Prepares and checks equipment	☐	☐
4.	Explains procedure to patient/family	☐	☐
5.	Chooses and inspects desired site for contraindications Back of the upper arm (humeral region) Upper outer aspect of thigh	☐	☐
6.	Chooses appropriate medication	☐	☐
7.	Withdraws medication	☐	☐
8.	Positions patient and prepares site	☐	☐
9.	Remove air from syringe (Push slightly on the plunger to bring a drop of solution to the level of the bevel of the needle)	☐	☐
10.	Support the muscle to be injected (Without contaminating the site pinch skin with non-dominant hand)	☐	☐
11.	Inserts needle into the site at 45° angle, stabilizes hub of syringe and aspirates for no blood return (no blood return indicates proper placement)	☐	☐
12.	Slowly injects medication to reduce pain and tissue trauma	☐	☐
13.	Withdraws needle and properly disposes needle and syringe	☐	☐

14.	Applies direct pressure, massages site and applies bandage as needed	☐	☐
15.	Reassess/Document: • Patient • Medication and dosage given • Administration success • Patient response/tolerance to intervention	☐	☐
Notes:			



http://www.ada-diabetes-management.com/administer-subcutaneous-injection/

Continuous Positive Airway Pressure Device (CPAP)

INDICATIONS

Awake, alert patient able to follow commands in severe respiratory distress as evidenced by:

Respiratory rate ≥ 24 breaths per minute and/or
SpO2 less than 90% and/or
Accessory muscle use

CONTRAINDICATIONS

- Apnea
- Unconscious
- Pediatric (appearing to be less than 15 years of age)
- Suspected pneumothorax
- Vomiting
- Systolic blood pressure 90 mmHg or less (relative contraindication)

CONSIDERATIONS

No considerations

Continuous Positive Airway Pressure Device (CPAP)

Skills Test

Examinee: _____ Date: _____

Examiner: _____ Pass ☐ Pass/Counsel ☐ Fail ☐

Equipment:

- CPAP mask
- CPAP circuit or device
- Cardiac monitor
- Oxygen tank with spare available
- Capnography monitoring device

Assessment/Treatment indicators:

Indications	**Contraindications**
Awake, alert patient able to follow commands in severe respiratory distress as evidenced by: • Respiratory rate ≥ 24 breaths per minute and/or • SpO2 less than 90% and/or • Accessory muscle use	• Apnea • Unconscious • Pediatric (appearing younger than 15 years old) • Suspected pneumothorax • Vomiting • Systolic blood pressure 90 mmHg or less (relative contraindication)

	Procedure:	**Yes**	**No**
1.	Scene safety awareness/PPE usage	☐	☐
2.	States indications/contraindications	☐	☐
3.	Prepares/checks equipment Checks the "five patient rights, plus one" • Right patient • Right medication **D**-Dose/Drug • Right dose **I**- Integrity of packaging • Right route **C**-Clarity of solution • Right time **E**-Expiration Date • Allergies	☐	☐
4.	Explains procedure	☐	☐
5.	Provides supplemental oxygen as clinically indicated	☐	☐
6.	Positions patient sitting upright	☐	☐
7.	Assembles CPAP mask, circuit and device	☐	☐
8.	Applies mask and begins CPAP at 0-2cm H_2O (or lowest level allowed by the device); instruct patient to inhale through nose and exhale through mouth	☐	☐
9.	Slowly titrates in 3cm increments up to maximum of 15cm H_2O according to patients tolerance while instructing patient to continue exhaling against increasing pressure	☐	☐
10.	Attaches ET CO_2 monitoring device	☐	☐

11.	Verbalizes understanding of CPAP being continued until patient is placed on CPAP device at the receiving hospital Emergency Department (ED)	☐	☐
12.	Reassess/Document: • Patient work of breathing, level of anxiety, and level of comfort • CPAP level /reading • O_2 saturation, vital signs, lung sounds • Capnography monitoring • Patient tolerance/response to intervention	☐	☐
Notes:			

End Tidal Capnography Monitoring Device

INDICATIONS

***** MANDATORY: to rule out esophageal intubation and confirm and monitor endotracheal tube position in all intubated patients.***

To identify endotracheal tube dislodgement
To assist in monitoring ventilation and perfusion in all ill or injured patients
To monitor quality of chest compressions
To confirm ROSC
To monitor status of asthmatic, CHF, COPD, PE patient

CONTAINDICATIONS

- No considerations

CONSIDERATIONS

In cases of suspected head trauma (signs of herniation), maintain ET CO2 between 30-35mmHg (figure 1).

Aggressive hyperventilation should be avoided in all patients

End Tidal Capnography Monitoring Device

Skills Test

Examinee: _____ Date: _____

Examiner: _____ Pass ☐ Pass/Counsel ☐ Fail ☐

Equipment:

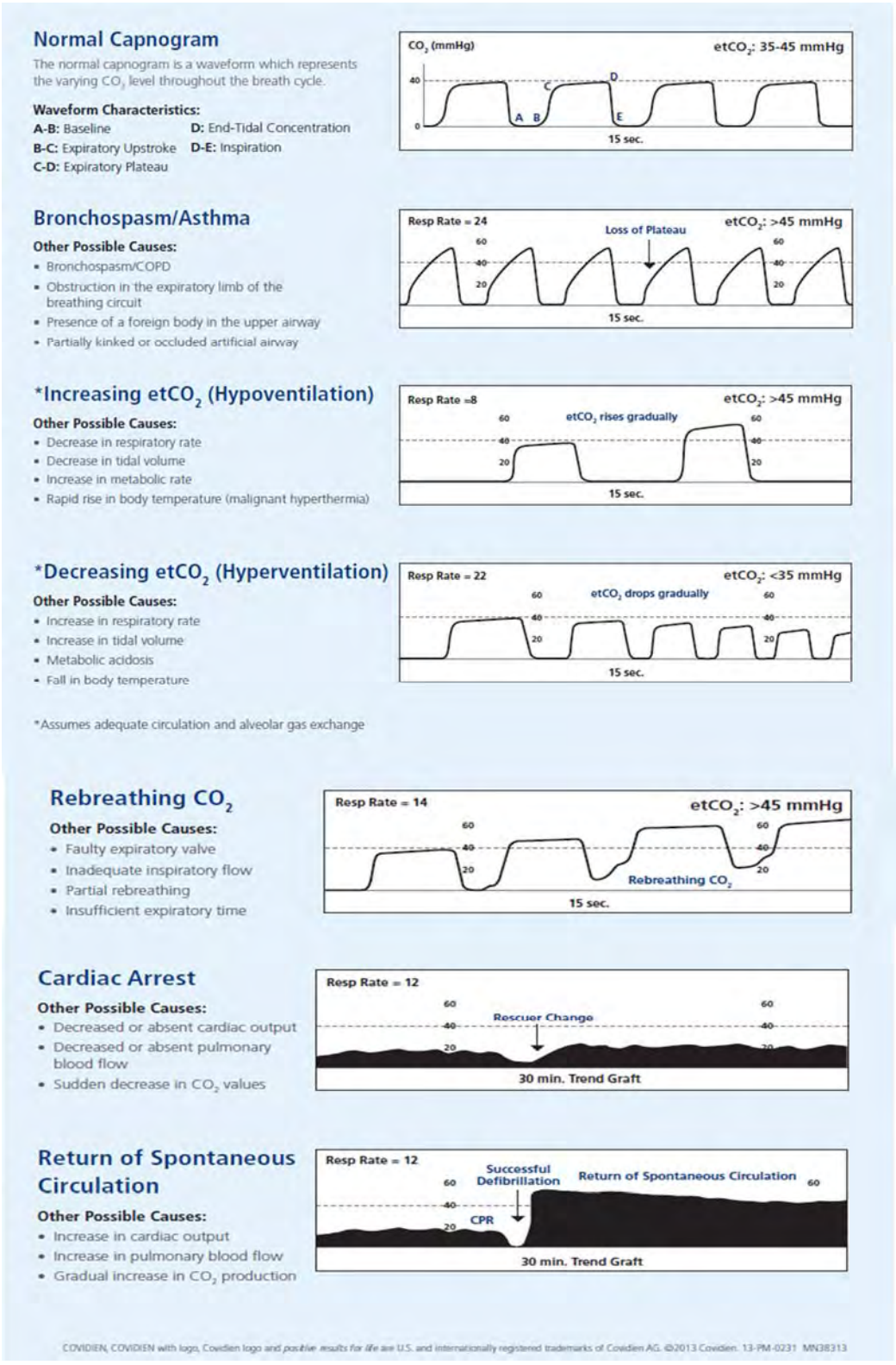
- PPE
- Cardiac monitor
- Oxygen device
- ET CO2 cable with sensor

Assessment/Treatment indicators:

Indications	**Contraindications**
• ***MANDATORY:*** *to rule out esophageal intubation or confirm and monitor endotracheal tube position in all intubated patients.* • To monitor quality of chest compressions • To confirm ROSC • To identify endotracheal tube dislodgement. • To assist in monitoring respiration, metabolism and perfusion in ill or injured patients • To monitor the status of an asthmatic, CHF, COPD, PE patient	• No contraindications

Procedure:		**Yes**	**No**
1.	Scene safety awareness/PPE usage	☐	☐
2.	States indications/contraindications	☐	☐
3.	Prepares/checks equipment	☐	☐
4.	Explains procedure	☐	☐
5.	Attaches the capnography sensor to the endotracheal tube or oxygen delivery device without increasing dead space	☐	☐
6.	If not previously attached, attaches the ET CO2 connector to the cardiac monitor	☐	☐
7.	Ideally, maintains ET CO2 output between 35-45 mmHg	☐	☐
8.	If suctioning is required, takes caution to not dislodge "T" sensor	☐	☐
9.	Reassess/Document: • Patient • Respiratory status • Intubation or oxygen delivery • ET CO_2 reading, waveform and respiratory rate • Patient response/toleration to intervention	☐	☐

Notes:



NORMAL RANGES:

CAPNOG: 35-45mmHg
pH: 7.35 – 7.45
PCO_2: 35-45mmHg
- **CO_2 is an ACID**

HCO_3: 22-28mmol/L
- **Bicarb regulates pH**

5mL is the maximum airflow to be used with the capnography cannula or the sampling will be diluted and incorrect (wash out)

Capnography cannulas CAN BE USED with CPAP masks. The masks are designed to properly seal with a nasal capnography adjunct in place

An elevated RR may be due to the buildup of CO_2; the body compensates by blowing off this acid

Figure 1

With capnography, one can monitor Respiration, Metabolism and Perfusion

It is imperative to have capnography in place to measure the FIRST (assisted or unassisted) breath to establish a baseline for each patient.

External Jugular Vein Access

INDICATIONS

Patient condition requires IV access and other peripheral IV access attempts are unsuccessful.

CONTRAINDICATIONS

- Patient eight (8) years of age or younger

CONSIDERATIONS

No considerations

External Jugular Vein Access

Skills Test

Examinee: _____ Date: _____

Examiner: _____ Pass ☐ Pass/Counsel ☐ Fail ☐

Equipment:

- Appropriately sized IV catheter
- Alcohol swabs
- Occlusive dressing
- IV tubing/fluids (if indicated)

Assessment/Treatment indicators:

Indications	**Contraindications**
• Patient condition required IV access and other peripheral IV access attempts are unsuccessful	• Patient eight (8) years of age or less

	Procedure:	**Yes**	**No**
1.	Scene safety awareness/PPE usage	☐	☐
2.	States indications/contraindications	☐	☐
3.	Prepares/checks equipment	☐	☐
4.	Checks the "five patient rights, plus one" • Right patient • Right medication **D**-Dose/Drug • Right dose **I**- Integrity of packaging • Right route **C**-Clarity of solution • Right time **E**-Expiration Date • Allergies	☐	☐
5.	Explains procedure	☐	☐
6.	Utilizes axial spinal stabilization in trauma patients. (f not in axial spinal stabilization, extend and stabilize patient's neck); maintain manual axial spinal stabilization if the need to remove c-collar arises	☐	☐
7.	Places patient in Trendelenburg position or apply slight pressure at base of vein for tourniquet effect	☐	☐
8.	Obtains external jugular vein access with appropriately sized IV catheter	☐	☐
9.	Securely tapes catheter with occlusive dressing in place and continue to monitor for patency	☐	☐
10.	Rechecks site frequently for signs of infiltration	☐	☐
11.	Reassess/Document: • Patient EJ IV placement and s/s of infiltration • Patient tolerance/response to intervention	☐	☐

Notes:

Intraosseous Insertion/Infusion (IO)

INDICATIONS

Primary vascular access in cardiac patients eight (8) years of age and younger
Any patient where venous access is unavailable by any other mean

CONTRAINDICATIONS

- Fracture of target bone
- Previous IO attempt and marrow entry at target site
- Infection at target site
- Severe burn to the extremity
- Crush injuries
- Known bone disease

CONSIDERATIONS

Anterior distal femur, 2cm above the patella; base station order (Figure 1)
Lidocaine for pain control
Pressure infusion device

Intraosseous Infusion

Skills Test

Examinee: _____ Date: _____

Examiner: _____ Pass ☐ Pass/Counsel ☐ Fail ☐

Equipment:

- PPE
- IV Solution
- IV administration set
- 3-way stopcock
- IO needle/driver (25mm, 45mm)
- Povidone – iodine OR
- Chlorhexidine skin cleaner
- Extension tubing
- Sharps container
- Tape
- Splint
- Pressure infuser or BP cuff
- Syringe
- Sterile gauze pads

Assessment/Treatment indicators:

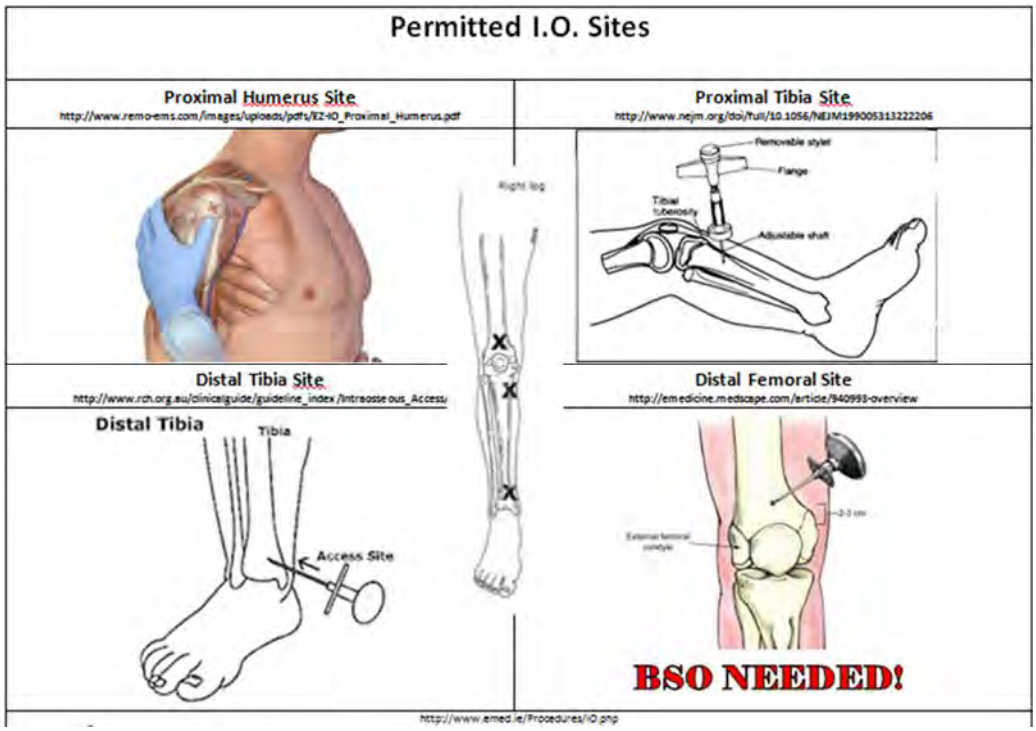
Indications	**Contraindications**
• Primary vascular access in cardiac patients eight (8) years of age and younger • Any patient where venous access Is unavailable by any other means	• Fracture to the target bone • Previous IO attempt and marrow entry at target site • Severe burn to the extremity • Crush injuries • Known bone disease • Infection at target site

Procedure:		**Yes**	**No**
1.	Scene safety awareness/PPE usage	☐	☐
2.	States indications/contraindications	☐	☐
3.	Prepares/checks equipment	☐	☐
4.	Checks the "five patient rights, plus one" • Right patient • Right medication **D**-Dose/Drug • Right dose **I**- Integrity of packaging • Right route **C**-Clarity of solution • Right time **E**-Expiration Date • Allergies	☐	☐
5.	Selects appropriate solution/administration set • Prepares IO and attaches 3-way stopcock (as needed), extension tubing, and syringe	☐	☐
6.	Selects the appropriate sized needle for insertion • Attaches needle to driver	☐	☐
7.	Select the appropriate site of insertion and cleans with selected skin cleanser a) **Anterior medial aspect of the proximal tibia** – approximately 1-3cm below the tibial tuberosity (preferred site for pediatrics eight (8) years of age and younger)	☐	☐

	b) **Anterior medial malleolus (distal tibia)** – approximately 1-3cm above the medial malleolus (one of the preferred site for adults nine (9) years of age and older) c) **Proximal humeral head** – approximately 1-3cm from the humeral tuberosity when the hand is rotated inward toward the body (adults nine (9) years of age and older only) d) **Distal Femur** – approximately 1-3cm above the distal head **** *Base Station Order (BSO) only***		
8.	Explains procedure	☐	☐
9a.	Insertion (EZ-IO): a. **Anterior Tibia** (example) • Swabs dominant hand with Povidone-iodine and relocate the landmark, with other hand stabilizing the leg • Positions the IO needle and driver perpendicular to the patient's leg (90-degree angle) • Inserts the needle through the skin to the bone until the needle rests against the bone • Visualizes the 5mm mark above the skin • Depresses the trigger on driver to insert IO needle until there is a sudden decrease of resistance (or "pop") • Removes the driver and the stylet; ensures proper disposal • Attaches primed IV extension tubing to hub of needle	☐	☐
9b.	Insertion (manual): a. **Anterior Tibia** (example) • Swabs dominant hand with Povidone-iodine and relocate the landmark while stabilizing the leg • Positions the IO needle perpendicular to the patient's leg (90-degree angle) • Applies downward pressure in a twisting motion perpendicular to the surface of the target site • Upon entrance into medullary cavity, slightly advances needle 1-2cm	☐	☐
10.	Confirms IO placement • Loss of resistance on insertion • Needle free standing • IO flushes freely • Aspiration of blood/marrow • No extravasation	☐	☐
11.	Secures IO • Leaves site uncovered, hinges tubing to extremity with tape	☐	☐
12.	Pain control for conscious patients • Utilize 2% Lidocaine ▪ Primes extension tubing with 0.5 mg/kg of 2% Lidocaine and infuse slowly (over 2 minutes), not to exceed 40mg	☐	☐
13.	Determines how IV fluid/medication may be administered: • Using a syringe, pressure device or B/P cuff	☐	☐
14.	Reassess/Document: • Patient	☐	☐

	• Placement/size/site for signs of extravasation • Medication: dose, time, route/location, • Patient response/tolerance to intervention		
Notes:			

Figure 1



Nasogastric/Orogastric Tube Insertion

INDICATIONS

Any intubated patient where gastric distention may impede ABC's
ALL intubated pediatric patients
Oral route for patients with mid-facial trauma and all patients less than six (6) months of age
Conscious with continuous vomiting and inability to maintain airway

CONTRAINDICATIONS (Relative)

- History of esophageal strictures, varices and/or other esophageal disease
- Caustic ingestion
- Significant facial or head trauma
- History of bleeding disorders

CONSIDERATIONS

No considerations

Nasogastric/Orogastric Tube Insertion

Skills Test

Examinee: _____ Date: _____

Examiner: _____ Pass ☐ Pass/Counsel ☐ Fail ☐

Equipment:

- PPE
- Naso/Orogastric tube (appropriately sized)
  - Adult 16-18fr
  - Pediatric 8-10fr
  - Infant 5-6fr
- Water soluble lubricant or viscous Lidocaine gel
- 30-60 ml syringe
- Suction Setup
- Emesis Basin
- Tape

Assessment/Treatment indicators:

Indications	**Relative Contraindications**
• Any intubated patient where gastric distention may impede ABC's • Oral route for patients with mid-facial trauma and all patients less than six (6) months of age • Conscious with continuous vomiting and unable to support airway	• History of esophageal strictures, varices and/or other esophageal disease • Caustic ingestion • Significant facial or head trauma • History of bleeding disorders

	Procedure:	**Yes**	**No**
1.	Scene safety awareness/PPE usage	☐	☐
2.	States indications/contraindications	☐	☐
3.	Prepares/checks equipment	☐	☐
4.	Checks the "five patient rights, plus one" • Right patient • Right medication **D**-Dose/Drug • Right dose **I**- Integrity of packaging • Right route **C**-Clarity of solution • Right time **E**-Expiration Date • Allergies	☐	☐
5.	Selects appropriate size OG/NG tube	☐	☐
6.	Explains procedure	☐	☐
7.	Insertion	☐	☐
7a.	Position patient in high Fowlers unless otherwise contraindicated or unconscious	☐	☐
7b.	Measure and mark the gastric tube for proper insertion length; have suction equipment and emesis basin readily available • **Nasogastric** – combined distance between the tip of the nose to the ear lobe to the xiphoid process	☐	☐

	• **Orogastric** – combined distance between the corner of the mouth to the ear lobe to the xiphoid process		
7c.	Examine both nares to determine nare with best airflow or examine oropharyngeal cavity for obstructions or secretions	☐	☐
7d.	Lubricate distal third of the gastric tube with a water-soluble lubricant or viscous Lidocaine gel	☐	☐
7e.	Gently pass the tube posteriorly along the floor of nasal or oral cavity	☐	☐
7f.	Instruct patient to swallow (if conscious)	☐	☐
7g.	If resistance is met while using nasal route, remove and attempt the other nostril	☐	☐
7h.	Slowly rotate and advance tube during insertion until pre-designated mark is at tip of nose or corner of mouth	☐	☐
8.	Confirm proper tube placement • Aspiration of stomach contents • Injection of 30-60ml of air into tube and auscultate for the sound of air over the epigastric region	☐	☐
9.	Secure tube to bridge of nose or to side of mouth	☐	☐
10.	Attach gastric tube to suction tubing and adjust to low suction or other type of approved suction device	☐	☐
11.	Reassess/Document: • Patient • Placement/size, attempts • Medication administered • Dose	☐	☐
Notes:			

Needle Cricothyrotomy

INDICATIONS

Upper airway obstruction with severe respiratory distress

When unable to ventilate utilizing conventional airway maneuvers or devices

CONTRAINDICATIONS

Transection of distal trachea:

- **Symptoms:** respiratory distress, hoarseness, dysphonia (inability to produce voice sounds), cough, noisy breathing and stridor, dysphagia (inability to swallow)
- **Physical signs:** abnormal laryngeal contour, subcutaneous emphysema, cervical ecchymosis, hemoptysis (the coughing of blood from the respiratory tract below the level of the larynx)

Patient less than two (2) years of age

CONSIDERATIONS

Inline cervical stabilization as needed

Needle Cricothyrotomy

Skills Test

Examinee: _____ Date: _____

Examiner: _____ Pass ☐ Pass/Counsel ☐ Fail ☐

Equipment:

- PPE
- NRB mask with 100% oxygen
- Adult 10-15gauge needle
- Pediatric 12-15gauge needle
- Cannula adaptor
- Syringe
- BVM or Translaryngeal Jet Ventilation (TLJV) device
- Optional: 3-way stopcock or y-connector
- End-tidal CO_2 and Pulse Oximetry

Assessment/Treatment indicators:

Indications	**Contraindications**
• Upper airway obstruction with severe respiratory distress • When unable to ventilate utilizing conventional airway maneuvers or devices	• Transection of distal trachea • Patient less than two (2) years of age

	Procedure:	**Yes**	**No**
1.	Scene safety awareness/PPE usage	☐	☐
2.	States indications/contraindications	☐	☐
3.	Prepares/checks equipment	☐	☐
4.	Explains procedure	☐	☐
5.	Supports ventilations, use inline cervical stabilization as needed	☐	☐
6.	Pre-oxygenates and place patient in supine position prior to attempting procedure	☐	☐
7.	Locates the soft cricothyroid membrane between the thyroid and cricoid cartilage	☐	☐
8.	Holds the trachea in place and provide skin tension with the thumb and middle finger of the non-dominant hand placed on either side of the trachea	☐	☐
9.	Uses the index finger to palpate the cricothyroid membrane	☐	☐
10.	Places the needle in the midline of the neck at the inferior margin of the cricothyroid membrane (to avoid the cricothyroid blood vessels located superiorly and laterally) • Directing it caudally (toward the feet) at an angle of 30 to 45 degrees	☐	☐
11.	Punctures the skin and subcutaneous tissue. Advance the needle while continuously applying negative pressure on the syringe, until air bubbles are seen, confirming intratracheal placement	☐	☐
12.	Advances the catheter forward off the needle until its hub rests at the skin surface	☐	☐
13.	Removes the needle, attach a syringe and aspirate for air to confirm that the catheter remains in the trachea	☐	☐

14.	Attaches cannula adaptor to BVM or use Translaryngeal Jet Ventilation (TLJV) device and ventilate with either BVM or TLJV • One (1) second on and three (3) seconds off	☐	☐
15.	Secures device	☐	☐
16.	Reassess/Document: • Patient • Placement • Lung sounds • Chest expansion • SpO2 and ET CO_2 • Patient response/tolerance (if conscious) to intervention	☐	☐
Notes:			

Needle Thoracostomy

INDICATIONS

Progressively worsening dyspnea/cyanosis
Decreased or diminished breath sounds on the affected side
Hypotension
Increased agitation
Distended neck veins
Tracheal deviations away from the affected side

CONTRAINDICATIONS

- No contraindications

CONSIDERATIONS

Determine position for conscious and unconscious patient
If conscious, place the patient in an upright position if able to tolerate
If patient is unconscious or in axial-spinal immobilization, leave supine
Determine best site:

- 2nd Intercostal space at the mid-clavicular line or the alternative site, at the 4th intercostal space, mid-axillary
- Caution should be exercised in the later stages of pregnancy; a higher (3^{rd}) intercostal space should be used to avoid injury to the liver or spleen

Needle Thoracostomy

Skills Test

Examinee: _____ Date: _____

Examiner: _____ Pass ☐ Pass/Counsel ☐ Fail ☐

Equipment:

- PPE
- Needle Thoracostomy Kit; or
- 14 or 16 gauge 3.25 inch needle (pts >50 kg); or
- 18-gauge needle 1.5-inch needle (pts <50 kg)
- Antiseptic wipes
- Flutter valve
- End tidal CO_2 monitoring device
- BVM
- Tape

Assessment/Treatment indicators:

Indications	**Contraindications**
• Progressively worsening dyspnea/cyanosis • Decreased or diminished breath sounds on the affected side • Hypotension • Increased agitation • Distended neck veins • Tracheal deviations away from the affected side	• No contraindications

Procedure:		**Yes**	**No**
1.	Scene safety awareness/PPE usage	☐	☐
2.	States indications/contraindications	☐	☐
3.	Prepares/checks equipment	☐	☐
4.	Explains procedure	☐	☐
5.	Preps chosen site with antiseptic wipes	☐	☐
6.	Inserts needle perpendicular to the chest wall at the level of the superior boarder of the third rib until pleura is penetrated as indicated by one or more of the following: • A rush of air • Ability to aspirate free air into the syringe	☐	☐
7.	Removes the syringe and needle stylet and leave cannula in place	☐	☐
8.	Adds flutter valve	☐	☐
9.	Secures needle hub in place with tape or other device	☐	☐
10.	Reassess/Document: • Patient • Placement/location • Lung sounds, respiratory status, SpO2 and CO_2 monitoring	☐	☐

	• Patient response/tolerance to intervention		
Notes:			

Oral Endotracheal Intubation

INDICATIONS

Unresponsive and apneic patient

Agonal or failing respirations and/or no gag reflex present

Prolonged ventilation is required and adequate ventilation cannot otherwise be achieved

CONTRAINDICATIONS

- Suspected ALOC (initially)

CONSIDERATIONS

Utilize cervical stabilization as needed

Select appropriately sized endotracheal intubation tube

Consider prophylactic Lidocaine 1.5 mg/kg IVP for suspected head/brain injury

Oral Endotracheal Intubation

Skills Test

Examinee: _____ Date: _____

Examiner: _____ Pass ☐ Pass/Counsel ☐ Fail ☐

Equipment:

- PPE
- Endotracheal Intubation Tube *(appropriately sized for age group)*
- Stylet
- Laryngoscope
- End tidal CO_2 monitoring device
- BVM
- Tape
- Lidocaine IV (if indicated)

Assessment/Treatment indicators:

Indications	**Contraindications**
• Unresponsive and apneic patient • Patient with agonal or failing respirations, and/or no gag reflex • Prolonger ventilation is required and adequate ventilation cannot otherwise be achieved	• Suspected ALOC (initially)

Procedure:		**Yes**	**No**
1.	Scene safety awareness/PPE usage	☐	☐
2.	States indications/contraindications	☐	☐
3.	Prepares/checks equipment	☐	☐
4.	Checks the "five patient rights, plus one" • Right patient • Right medication **D**-Dose/Drug • Right dose **I**- Integrity of packaging • Right route **C**-Clarity of solution • Right time **E**-Expiration Date • Allergies	☐	☐
5.	Selects appropriate sized ET tube	☐	☐
6.	Explains procedure	☐	☐
7.	Insertion	☐	☐
7a.	Supports ventilations with appropriate basic airway adjuncts	☐	☐
7b.	Immediately prior to intubation, consider prophylactic Lidocaine 1.5 mg/kg IVP for suspected head/brain injury	☐	☐
7c.	Visualizes the vocal cords with the laryngoscope. Watch as the tube passes through the vocal cords. Advance the tube until the vocal cord marker is situated beyond the vocal cords. Placement efforts must stop after twenty (20) seconds for ventilation	☐	☐

7d.	After three (3) attempts, consider alternative airway access	☐	☐
7e.	Inflates the balloon to the point where no air leak can be heard	☐	☐
7f.	Listens for bilateral breath sounds, resume ventilation with 100% oxygen and secure airway	☐	☐
8.	Reassess/Document: • Patient • Lung sounds • Placement verification • SpO2 and CO_2 monitoring • Patient response to intervention	☐	☐
Notes:			

Synchronized Cardioversion

INDICATIONS

Unstable ventricular tachycardia or wide complex tachycardias (sustained)
Unstable narrow complex tachycardias

CONTRAINDICATIONS

- Patient eight (8) years of age and younger

CONSIDERATIONS

In typical pad placement, assess for:

- Transdermal medication patches (remove if found, wipe area clean)
- Implanted medical devices (avoid placing pads over devices or jewelry)

If patient's condition permits administer sedative medication for conscious patients with signs of adequate tissue perfusion:

- **MIDAZOLAM** 2 mg slow IV/IO push or via intranasal route

- **FENTANYL** 50 mcg slow IV/IO over one (1) minute (initial dose)
  In five (5) minutes subsequent doses may be repeated titrating to pain; not to exceed 200mcg total via IV/IO routes

  OR

- **FENTANYL** 100 mcg total, via intranasal (IN) or intramuscular (IM) route.
  If patient is medicated intranasally, 50 mcg may be repeated every ten (10) minutes; titrate to pain, do not exceed 200 mcg total regardless of route given.

Synchronized Cardioversion

Skills Test

Examinee: _____ Date: _____

Examiner: _____ Pass ☐ Pass/Counsel ☐ Fail ☐

Equipment:

- Pacing/Defibrillator pads
- PPE
- Cardiac monitor
- Midazolam (if indicated)
- Fentanyl (if indicated)

Assessment/Treatment indicators:

Indications	**Contraindications**
• Unstable ventricular tachycardia or wide complex tachycardias (sustained) • Unstable narrow complex tachycardias	• Patient less than eight (8) years of age

Procedure:		**Yes**	**No**
1.	Scene safety awareness/PPE usage	☐	☐
2.	States indications/contraindications	☐	☐
3.	Prepares/checks equipment	☐	☐
4.	Checks the "five patient rights, plus one" • Right patient • Right medication **D**-Dose/Drug • Right dose **I**- Integrity of packaging • Right route **C**-Clarity of solution • Right time **E**-Expiration Date • Allergies	☐	☐
5.	Explains procedure	☐	☐
6.	Applies defibrillation pads	☐	☐
7.	Selects initial energy level setting at 100 joules or a clinically equivalent biphasic energy level per manufacture guidelines (procedure may be repeated at 200, 300 and 360 joules or a clinically equivalent biphasic energy level per manufacturer guidelines)	☐	☐
8.	Sets monitor/defibrillator to synchronized cardioversion mode	☐	☐
9.	Makes certain all personnel are clear of patient	☐	☐
10.	Presses and holds the shock button to cardiovert (stays clear of the patient until you are certain the energy has been delivered)	☐	☐
11.	Assesses patient response and perform immediate defibrillation if the patient's rhythm has deteriorated into pulseless ventricular tachycardia or ventricular fibrillation	☐	☐

12.	Considers Midazolam 2mg slow IV/IO or 2mg IN/IM if patient is awake and alert and exhibits signs of adequate tissue perfusion	☐	☐
13.	Considers Fentanyl 50mcg IV/IO or 100mcg IN/IM to max of 200mcg for patient with complaint of pain and signs of adequate tissue perfusion	☐	☐
14.	Reassess/Document: • Patient • Initial and post conversion cardiac rate/rhythm • Medication administration • Patient response/tolerance to intervention	☐	☐
Notes:			

Transcutaneous Cardiac Pacing

INDICATIONS

Symptomatic Bradycardia

CONTRAINDICATIONS

- Patient less than eight (8) years of age
- Asystole

CONSIDERATIONS

Consider sedative medication for conscious patients with signs of adequate tissue perfusion:

- **MIDAZOLAM** 2mg slow IV/IO push or via intranasal route

- **FENTANYL** 50mcg slow IV/IO over one (1) minute (initial dose)
  In five (5) minutes subsequent doses may be repeated titrating to pain; not to exceed 200mcg total via IV/IO routes

  OR

- **FENTANYL** 100mcg total, via intranasal (IN) or intramuscular (IM) route
  If patient is medicated intranasally, 50mcg may be repeated every ten (10) minute; titrate to pain, do not exceed 200mcg total regardless of route given

Transcutaneous Cardiac Pacing

Skills Test

Examinee: _____ Date: _____

Examiner: _____ Pass ☐ Pass/Counsel ☐ Fail ☐

Equipment:

- Pacing/defibrillator pads
- PPE
- Cardiac monitor
- Midazolam (if indicated)
- Fentanyl (if indicated)

Assessment/Treatment indicators:

Indications	**Contraindications**
• Symptomatic Bradycardia	• Patient less than eight (8) years of age • Asystole

Procedure:		**Yes**	**No**
1.	Scene safety awareness/PPE usage	☐	☐
2.	States indications/contraindications	☐	☐
3.	Prepares/checks equipment	☐	☐
4.	Checks the "five patient rights, plus one" • Right patient • Right medication **D**-Dose/Drug • Right dose **I**- Integrity of packaging • Right route **C**-Clarity of solution • Right time **E**-Expiration Date • Allergies	☐	☐
5.	Explains procedure	☐	☐
6.	Applies pacing pads	☐	☐
7.	Starts pacing at lowest setting available on monitor until capture is noted at a rate of 60	☐	☐
8.	Assesses peripheral pulses to confirm correlation with paced rhythm (reassesses patient for signs of adequate tissue perfusion)	☐	☐
9.	Determines lowest threshold by turning the output control down until capture is lost, and then turn it back up slightly until capture is noted again (maintains this capture)	☐	☐
10.	Assesses peripheral pulses and confirm correlation with paced rhythm (reassesses patient for signs of adequate perfusion)	☐	☐
11.	Considers Midazolam 2mg slow IV/IO or 2mg IN/IM if patient is awake and alert and exhibits signs of adequate tissue perfusion	☐	☐

12.	Considers Fentanyl 50mcg IV/IO or 100mcg IN/IM to max of 200mcg for patient with complaint of pain and signs of adequate tissue perfusion	☐	☐
13.	Reassess/Document: • Patient • Initial and post procedural cardiac rate/rhythm • Capture threshold; rate and amperes • Medication administration • Patient response/tolerance to intervention	☐	☐
Notes:			

Vagal Maneuvers (Valsalva)

INDICATIONS

Stable narrow complex tachycardias

RELATIVE CONTRAINDICATIONS

- Hypertension
- Suspected acute MI
- Suspected head/brain injury

CONSIDERATIONS

No considerations

Vagal Maneuvers (Valsalva)

Skills Test

Examinee: _____ Date: _____

Examiner: _____ Pass ☐ Pass/Counsel ☐ Fail ☐

Equipment:

- Cardiac monitor
- SpO_2 monitor
- 10ml syringe or straw
- Ice water or cold washcloth as needed

Assessment/Treatment indicators:

Indications	**Contraindications**
• Stable narrow complex tachycardias	• Hypertension • Suspected acute MI • Suspected head/brain injury

Procedure:		**Yes**	**No**
1.	Scene safety awareness/PPE usage	☐	☐
2.	States indications/contraindications	☐	☐
3.	Prepares/checks equipment	☐	☐
4.	Checks the "five patient rights, plus one" • Right patient • Right medication **D**-Dose/Drug • Right dose **I**- Integrity of packaging • Right route **C**-Clarity of solution • Right time **E**-Expiration Date • Allergies	☐	☐
5.	Have patient perform one of the following techniques: a. Pinch nostrils together, close mouth and blow against their closed glottis b. Bear down as if having a bowel movement c. Submerge face in water or apply cold wet washcloth against face (preferred method for infants) d. Blow through straw or 10ml syringe	☐	☐
6.	All procedures should be performed until arrhythmia is terminated or a maximum of ten (10) seconds has passed; consider sync cardioversion	☐	☐
7.	Reassess/Document: • Patient • Initial cardiac rate/rhythm • Subsequent cardiac rate/rhythm • Medication administration • Patient response/tolerance to intervention	☐	☐

Notes:

References

Inland Counties Emergency Medical Agency Policies, Procedures and Protocol Manual. (2013). *Skills 10000 Series Protocols*.

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Skill Sheets For The Emergency Trauma Technician Classroom. (2015). In (Comp.), *Skill Sheets For The Emergency Trauma Technician Classroom Adapted from the State of Alaska Emergency Medical Technician-I Skill Sheets* (pp. 18-19). Sitka, Alaska: Southeast Region Emergency Medical Services Council.

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ICEMA
MEDICAL ADVISORY COMMITTEE

2019 MEETING DATES
(4th Thursday)

February 28, 2019
April 25, 2019
June 27, 2019
August 22, 2019
October 24, 2019
December 19, 2019 (3rd Thursday)

1300

ICEMA
Training Rooms A & B
1425 South "D" Street
San Bernardino, CA

The ICEMA Medical Advisory Committee (MAC) meeting facility is accessible to persons with disabilities. If assistive listening devices or other auxiliary aids or services are needed in order to participate in the public meeting, requests should be made through the Inland Counties Emergency Medical Agency at least three (3) business days prior to the MAC meeting. The telephone number is (909) 388-5823, and the office is located at 1425 South "D" Street, San Bernardino, CA 92408.